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New DSMC Press

Metamorphosis of Program Management

Measuring Leadership Performance

DSMC Change Of Command

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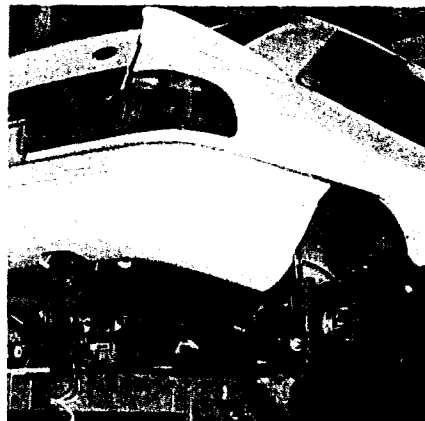
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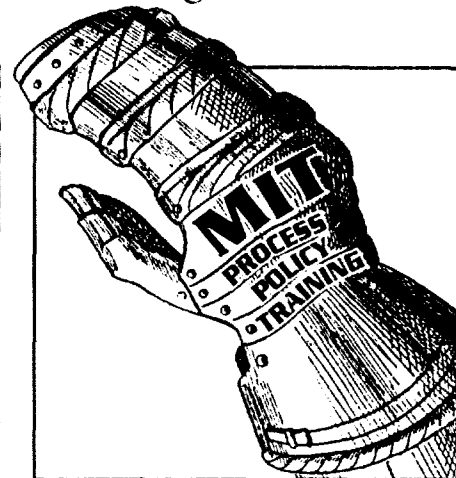
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Colonel W. E. Cole, USAF

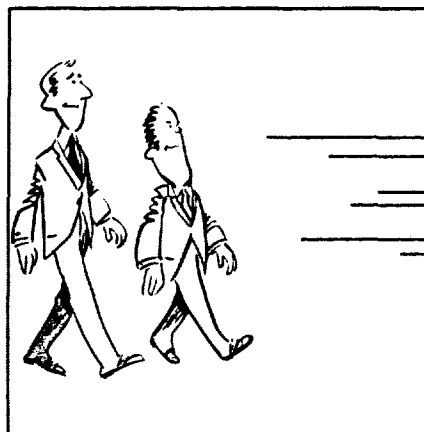
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Forrest Gale

Running the Marathon.

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Whenever in this publication "man," "men," or their related pronouns appear, either as words or parts of words (other than with obvious reference to named male individuals), they have been used for literary purposes and are meant in their generic sense.

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Rear Admiral William L. Vincent, USN (left), retiring Commandant of the Defense Systems Management College, and Brigadier General (Select) Claude M. Bolton, Jr., USAF (right), new Commandant, are joined by Vice Admiral William C. Bowes, USN, Commander, Naval Air Systems Command, for change-of-command and retirement ceremonies, March 25.



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Correction:

Wherever appearing in the article, "Career Counseling During the Drawdown," Jan.-Feb. '93 *Program Manager*, WHAT should read RIF. We regret the error and apologize to the author, Major Jody V. Rennie, USAF.

CALL FOR MANUSCRIPTS

Program Manager, published every two months by the Defense Systems Management College, welcomes your manuscripts for publication. Submit them, any time, to *Program Manager*, DSMC Press (RD-P), Fort Belvoir, VA 22060-5426. For more information call commercial 703-805-3056/2892 or DSN 665-3056/2892 between 0630-1630 hours, EST.

Limit manuscripts to 20 double-spaced pages and four figures/tables, and submit on a WordPerfect 5.1 diskette. Your manuscript will be acknowledged upon receipt and a decision to publish will be forthcoming within one month.

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WE'RE NOW A UNIVERSITY PRESS

On March 8, 1993, the Defense Systems Management College (DSMC) established a university press within the Research and Information Division. Called the DSMC Press, the new organization will manage the acquisition, editorial and marketing aspects of the College's publishing affairs.

The term university press connotes a publishing organization associated with, and operating as a shadow of, an academic institution. A university press functions as a natural outlet for information, theory and methodology, its intent to inform and influence. Contributors and recipients most likely are serious readers, academics or scholars, but a university press often bridges the academic community with society as a whole, becoming a forum for open exchange. We want the DSMC Press to be such a link to the government and private sector defense acquisition community.

The DSMC Press (code DSMC-RD-P) editorial offices are in Room 92 of Building 209. Telephone numbers are commercial 703-805-3056/2892, and DSN 655-3056/2892. The staff includes:

Mr. Robert W. Ball, editor of the Defense Acquisition University refereed scholarly journal, *Acquisition Review Quarterly*;

Mrs. Catherine M. Clark, managing editor of the journal of the Defense Systems Management College, *Program Manager*;

Mrs. Esther M. Farria, associate editor of *Program Manager* and editor of books and guidebooks; and

Miss Carrie Simpson, editorial assistant.

My office remains in Room 109 of Building 205. My telephone numbers are commercial 703-805-2525 and DSN 655-2525.

We encourage you, our readers, to let us know how we're doing, and to provide us with suggestions for continually improving our publications. We also encourage you to submit manuscripts for publication consideration in either the brand new *Acquisition Review Quarterly*, or our flagship periodical, *Program Manager*. Author's guidelines for both are available by writing our office.



Wilbur D. Jones, Jr.
Director,
Defense Systems
Management College Press

Note: With Disestablishment of the DSMC Publications Department, the Printing and Duplicating Services Department (OS-PR) now distributes all DSMC publications. Their telephone numbers are commercial 703-805-2743/DSN 655-2743.

CHANGE OF COMMAND

BRIGADIER GENERAL (SELECT) CLAUDE M. BOLTON, JR., USAF Is DSMC's 12TH COMMANDANT

Brigadier General (Select) Claude M. Bolton, Jr., USAF, became the 12th commandant of the Defense Systems Management College on March 25, 1993. He succeeds Rear Admiral William L. Vincent, USN, commandant since July 26, 1991. BGen (Sel) Bolton served as inspector general, Headquarters Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio, since September 1992.

BGen (Sel) Bolton was born Dec. 13, 1945, in Sioux City, Iowa, and graduated from South Sioux City High School, South Sioux City, Neb. He earned a bachelor's degree in electrical engineering from the University of Nebraska in 1969, and was commissioned a second lieutenant as a distinguished graduate of the Air Force Reserve Officer Training Corps program there. In 1978, he earned a master's degree in management from Troy State University, Troy, Ala., and completed course work for a Ph.D. in electrical engineering at the University of Florida. He completed Squadron Officer School in 1974, Air Command and Staff College and the Defense Systems Management College in 1982, and the Naval War College in 1986. In 1991, he earned a second master's degree in national security and strategic studies from the Naval War College.

BGen (Sel) Bolton was assigned to Williams Air Force Base, Ariz., for pilot training and received his wings in 1970. He then was assigned to McConnell Air Force Base, Kan., and flew the F-105D aircraft. He later transitioned to the F-4 aircraft.

Flew 232 Combat Missions

In June 1971, BGen (Sel) Bolton was assigned to Ubon Royal Thai Air



Brigadier General (Select) Claude M. Bolton, Jr., USAF

Force Base, Ubon, Thailand, flying F-4D/E for the 497th Tactical Fighter Squadron (Nite Owls). While at Ubon, he flew 232 combat missions--40 over North Vietnam--including the first missions after the bombing of North Vietnam was resumed. In 1972, he was assigned to Cannon Air Force Base, N.M., where he flew the F-111D aircraft and served as an instructor pilot and safety officer.

In 1974, he was assigned to the 55th Tactical Fighter Squadron, Royal Air Force, Upper Heyford, England, as an F-111E pilot. While there, he served as the squadron and wing safety officer, instructor pilot, and wing standardization/evaluation flight examiner and scheduler.

In 1977, BGen (Sel) Bolton attended the Air Force Test Pilot School at Edwards Air Force Base, Calif. Following graduation, he was assigned to the 3245th Test Wing at Eglin Air Force Base, Fla., as a test pilot flying

the F-4, F-111, and F-16. He also was the F-111 flight test manager for the Armament Division there. In 1982, he was assigned to Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio, as the first program manager for the Advanced Tactical Fighter Technologies Program, which evolved into the F-22 System Program Office.

To Pentagon in 1986

In 1986, BGen (Sel) was assigned to the Pentagon, Washington D.C., first as the F-16 program element monitor and deputy division chief, Aircraft Division, and later as the division chief, Low Observables Vehicle Division, Office of Special Programs. He returned to the Aeronautical Systems Division as deputy program director for the B-2 System Program Office in August 1988. In August 1989, he became program director for the Advanced Cruise Missile System Program Office, Aeronautical Systems Division, Air Force Systems Command.

BGen (Sel) Bolton is a command pilot with 2,700 flying hours in 27 different types of aircraft. His military decorations include the Distinguished Flying Cross with one oak leaf cluster, Meritorious Service Medal with two oak leaf clusters, Air Medal with 17 oak leaf clusters, Air Force Presidential Unit Citation, Air Force Outstanding Unit Award with two oak leaf clusters, Air Force Organizational Excellence Award with one oak leaf cluster, Republic of Vietnam Gallantry Cross, Republic of Vietnam Campaign Medal, and Vietnam Service Medal.

He is married to the Former Linda Roll of Alma, Neb. They have two daughters, Cynthia and Jennifer.

THE METAMORPHOSIS OF PROGRAM MANAGEMENT

Rainbow of Change

Colonel W. E. Cole, USAF

Program Management: "A special management approach used within an organization to provide centralized authority and responsibility (on a team or task force basis) for the priority accomplishment of a specific project or task that is critical to the success of the organization. Typically involves the timely integration of different specialties and activities into a coherent, coordinated effort." **Defense Systems Management College definition.** (Italics added.)

After taking it on the chin from foreign corporations for the last 30 years, American companies are finally beginning to get up off the canvas and hit back. Tired of lower market shares and sick of dwindling profits, they're beginning to strike back with a promising new management paradigm — a new-fashioned theory that calls for empowerment over centralized control, teams instead of individuals, customer needs over internal bureaucracies, and product- and process-oriented organizations rather than the functionally oriented structures of the past. By gravitating toward the team-based portion of their new management gospel, many companies are

discovering what the Japanese and proponents of DOD program management have been preaching for years: The only way to manage projects is to integrate specialized functionals into cohesive, coordinated teams.

Follow the Bouncing Ball

Ford Motor Company, for example, after watching its business gradually slide over to the Japanese side of the ledger, tossed away its old, functionally oriented approach to development and formed a team of specialists (even calling the concept program management) to develop its highly successful Taurus. Before getting wise to the benefits of a cross-functional, team-based approach, Ford used what many call the "stovepipe" or "silo" method of development. Design groups at the bottom of a design department would design a product and after review and approval by leaders in the design department, pass it over to engineering. Then lower-level engineering groups would engineer the design and run it up the flagpole to the head of engineering who would start the review and approval cycle all over again before passing the ball on to the next functional group. From engineering it went to production, then marketing and finally to other peripheral functional groups (see Figure 1).

When it wasn't bouncing up and down the functional departments, the ball was being tossed back into the

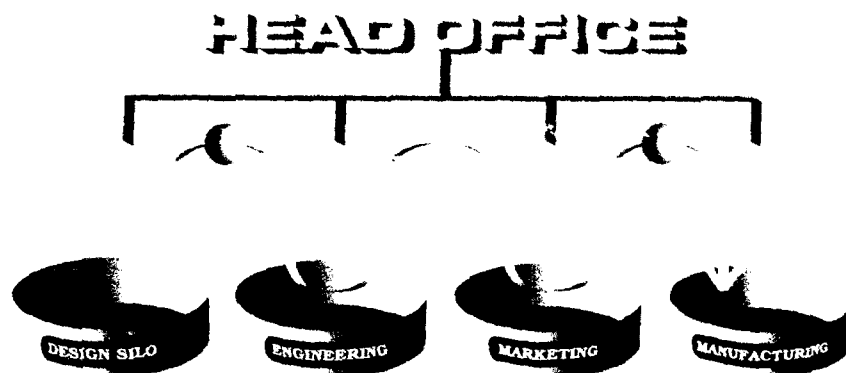
previous stovepipe for time-consuming revisions. Not until a few short months before the beginning of production were customers shown prototypes of the design. By then the process had taken 5 years and it was far too late for any changes. Expen-



Up It Goes — Employees at Ford Motor Company's Wayne (Mich.) Stamping & Assembly Plant pack a Taurus coil.

Colonel Cole is deputy for programs, Joint STARS Program Office, Headquarters Electronics Systems Center (AFMC), Hanscom Air Force Base, Mass. He was a DSMC 1989-90 Military Research Fellow.

FIGURE 1. Traditional Approach to Development



sive tooling had been purchased and millions of man-hours invested in the process of reiterative design by functional fiefdoms.

Abandoning this time-consuming process, Ford put designers, engineers, manufacturing experts and market-

ing types together in one group and gave them the green light. By taking just 3 1/2 years to develop the Taurus and helping Ford to establish the concept of cross-functional teaming, Team Taurus has been credited with turning Ford into one of the most successful automobile companies in the world.

Proving that development projects are not the only activities that can benefit from this new approach, that quintessential all-American company, Levi Strauss, just announced it too has become a big fan of this new management paradigm. By abandoning its serial production line methods and assembling each pair of jeans with a team of specialists, Levi Strauss claims total assembly time for a pair of jeans has been cut in half.

A Rose by Any Other Name

Are these companies merely rediscovering the decades-old concept of cross-functional teaming embodied in the theory of program management? Or, are they going beyond the basics of program management and adding new ingredients that help assure success? Better yet, are they adding ideas that can be used by those in government?

By adding a few ideas of their own, picking up a trick or two from the Japanese, and taking classes from the newest management gurus, many American companies are pushing program management beyond its broad-based theory into a more advanced concept. Applicable to both industry and government activities, their new approach answers to a number of names. Some call it self-directed teaming. Chrysler calls it platform teaming. Others call the concept self-managed teams, cluster management, holistic management, or quality work teams. To paraphrase the bard, however, "A rose by any other name is still a rose."

Pushing Ownership Downward

Whatever the name, there is a common core of ideas which set this new approach apart from past applications of program management. One of the most important new ideas that's been added is the something old part of the equation -- the notion of empowerment. By rebuilding their companies



activated, conveyor-mounted hoist while installing the rear suspension in a Ford Escort. A similar "moon buggy" is used to install the engine, steering and front suspension components

around cross-functional teams and working hard at adjusting attitudes among workers and managers, companies have pushed ownership all the way down to the team level, creating pride and ownership of product where attitudes of "not my department" and "not my problem" existed before.

When Chrysler formed its platform teams to develop its critically acclaimed Viper sports car and newly released LH series of family sedans, it initiated empowerment and autonomy of teams with a vengeance. Even the venerable Lee Iacocca saw his control over platform development diminish. In the past, Iacocca would walk into Chrysler's design studios and declare he didn't like certain parts of a platform's design and demand that a grill or headlight placement be changed. Under Chrysler's new platform teams, separated from the rest of the company and given full autonomy and responsibility for a platform's development, Iacocca had little, if any, control over these new teams' activities.

King Customer

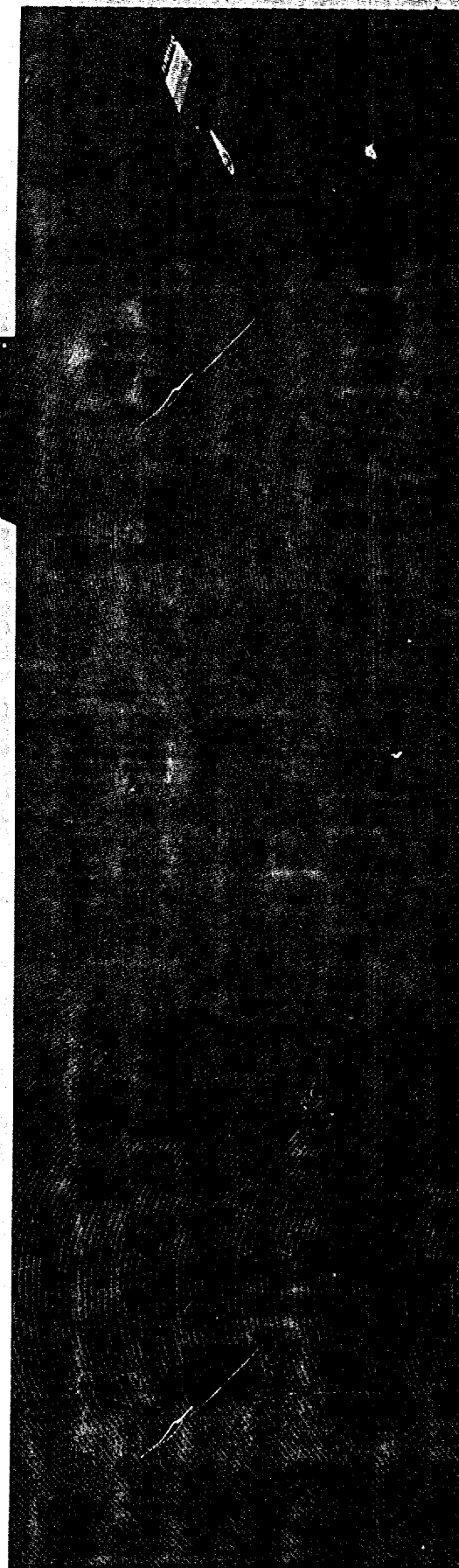
While they weren't listening to Iacocca, Chrysler's teams were lending an ear to a new voice added to the concept of management by cross-functional teams. From the beginning, the customer was the one to listen to. Interim customer surveys and reviews of customer desires were fed directly into design efforts as the teams went about their business. Results of Chrysler's experiment speak for themselves: development of Dodge's new Viper sports car used just 85 team members and cost only \$118 million compared to the \$150 million it cost to develop the Mazda Miata. Just as importantly, customers are lining up to buy their products. By abandoning its old practice of development by functional groups, with its "let's design and engineer it in a vacuum and throw it over to manufacturing" motto, Chrysler showed that American firms can beat the Japanese at their own

game by using a cross-functional team approach based on empowerment and customer satisfaction.

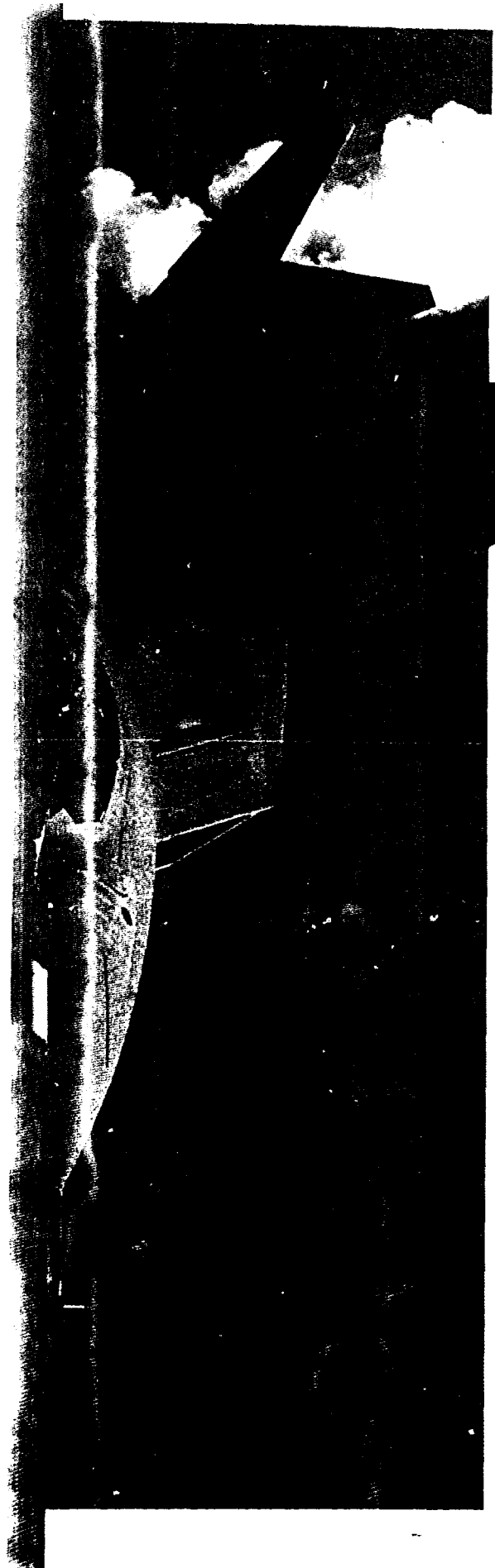
Cheerleaders and Fans

Leading the cheers and providing encouragement for such dramatic shifts in American management thinking is a group of new and upcoming management gurus. These new stars preach the benefits of empowerment, cross-functional teaming, customer orientation, greater teamwork through enhanced communications, and organizational structures which concentrate on products and processes rather than the functionally structured and centrally controlled organizations of the past. A recent article in *Business Week* on these new management gurus points out they, "... believe that management should organize itself on the basis of process, such as fulfilling an order, instead of functions, such as marketing or manufacturing. That takes an organization's focuses off its own internal structure and puts it on meeting customers' needs, where it belongs....They generally agree that time can be squeezed out of every job; that self-managed teams throw more challenge and meaning into employment...."

And industry is beginning to listen. Xerox, for one, listened to David Nadler, a proponent of what he calls "organizational architecture" and initiated a major reorganization of their company this year. Nadler, former professor of business at Columbia University and founder of New York-based Delta Consulting, argues that what he calls "autonomous work teams" and "high-performance work systems" are much more responsive to the customer than yesterday's tradition-bound organizations. In a similar vein, Michael Hammer, consultant to American Express Co. and Eastman Kodak



F-22 Prototype.



Co., argues for massive organizational changes that encourage businesses to focus on process or product rather than function. His credo, "reengineering," calls for a redesign of not only a company's organizational structure, but also for a revamping of job designs and management and support systems within a company.

But What's in It For Us?

All this new talk may be extremely interesting to America's CEOs and business managers, but what's in it for us? Can these new ideas be applied to government activities? The U.S. Air Force believes so.

While industry goes about the business of reinventing itself, the Air Force Materiel Command (AFMC) is taking a step in the same direction with a concept that's nearly a twin of industry's new approach. Called Integrated Product Development (IPD), this Air Force version of the American management revolution gets back to basics by drawing heavily on the concept of cross-functional teaming contained in the DSMC definition of program management. More importantly, the Air Force is adding empowerment, autonomy, and concentration on customers' needs — the same ingredients that are breeding success in the commercial arena. And like industry, the Air Force is adding a few tricks and ideas of its own from its own management background.

First conceived as the Air Force answer to concurrent engineering, with a leaning toward product-oriented organizations instead of the functionally oriented hierarchies of the past, this new approach to program management has spawned a number of program office reorganizations. The F-22 program office at Wright-Patterson AFB, charged with developing the replacement fighter aircraft for the Air

Force's frontline F-15, was one of the first offices to reorganize under the cross-functional, team-based approach. Forming what are called Integrated Product Teams (IPTs), the F-22 System Program Office divided the job of developing the F-22 into four basic products — airframe, engine, training systems, and support equipment — and assigned team members from functional areas to work each product, making them responsible for all activities associated with developing and supporting their product.

At Hanscom Air Force Base in Massachusetts, a similar move occurred in Joint STARS, a program office that has the job of developing, producing and supporting an airborne radar that's integrated with communications suites and computerized battlefield displays on a 707-based airframe. The Joint STARS program director divided his program office into three large Integrated Product Teams — one for the airborne system, one for support systems, and one for training systems. Then he broke these major areas into smaller, product-oriented teams. The airborne system, for example, was divided into three subteams to develop an E-8A version of Joint STARS, an E-8C version and a Self Defense Suite to be added after the beginning of full-phased production.

New Times, New Tenet

Encouraged by AFMC Headquarters, with their new mission of developing and supporting the weapon systems they develop, a number of Air Force program offices have reorganized themselves into Integrated Product Teams by now. While they've been reorganizing into these discrete cross-functional teams, each responsible for a specific product, the concept of Integrated Product Development has been maturing beyond its original focus of getting all technical disciplines involved during development into a full-blown management philosophy.

First, by adding all applicable functional disciplines, not just engineers, to their definition of cross-functional teaming, the Air Force's IPD concept was given the power to reach out and touch the structure of virtually every organization within the Air Force acquisition and support community. Then, by adding empowerment, customer orientation and process improvement to their expanded cross-functional teaming concept, this new management philosophy began asking for a cultural shift and an attitude adjustment from each and every individual in acquisition and support. Where organizational restructure was once seen as an end result of Integrated Product Development, the addition of these latter ideas has turned the tables by calling for a tops-to-bottom cultural change, resulting in organizational restructure as a by-product, rather than an end result. By picking up empowerment, concentration on the customer, and process improvement from the Deming school of management, this new credo has grown into what General Yates, commander of AFMC, calls a basic tenet by which all of AFMC will be doing business in the future.

The Integrated Product Development concept, however, takes the thoughts of Deming and TQM a step further by getting entire teams, rather than individuals, involved and empowered. By adding Deming's tenets, and other ideas to its cross-functional teaming concept, leaders at AFMC Headquarters have pushed the concept of Air Force program management through a metamorphosis into a more advanced concept. Retaining the best from the past and adding the best from the new, the Air Force Material Command has a new program management philosophy that calls for: fully integrated and empowered cross-functional teams; concentration on producing products that meet customers' needs; continuous improvement of the processes the teams use; and a revamping of program offices' management support systems and

communications to support and enhance the effectiveness of its cross-functional teams.

A Tool for All Seasons

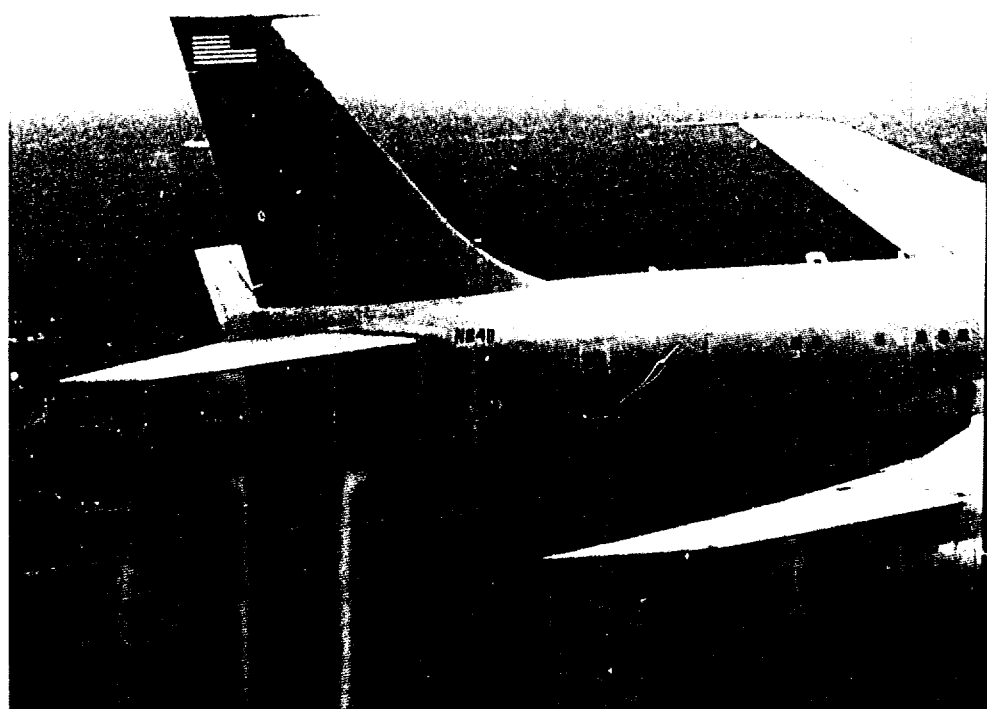
While the Air Force's Integrated Product Development concept has gone from adolescence to adulthood, organizations in the field have discovered that this new concept is not just for development or production programs. By applying the same principles to cross-functional teams responsible for, say, processes, the troops are beginning to discover the flexibility and power of this new tenet.

At Electronic Systems Center (ESC) at Hanscom AFB, for example, an Integrated Product Team was formed with the mission of developing the most efficient methods for writing a request for proposal (RFP). Drawing on assigned functionals from throughout ESC, the team developed a set of guidelines and how-to documents for

program managers' use as they develop requests for proposals. Then, demonstrating their commitment to their customer, the team made itself available to any program manager involved in developing a request for proposal. Today, the first thing program managers at ESC do when faced with building a request for proposal is to contact the RFP team to help guide them through the labyrinths of acquisition strategies and nuances of model contracts, proving that concentration on customers' needs, while simple in concept, is one of the most powerful ingredients in the successful application of IPD.

Through a Minefield of Change

While all these newly combined tenets of empowerment, cross-functional teaming, and customer orientation may sound simple, implementing them in established organizations can be like changing an Army's battle



Joint STARS E-8A.

plan in mid-attack. New flanking movements and modified arrows of attack look simple enough on paper, but the devil exists in the details and in the execution. To successfully implement this new management strategy, organizations must work their way through a minefield strewn with distressing attitude shifts, disruptive organizational restructures, and discouraging rewrites of administrative procedures and revampings of management support systems. How successfully they make their way through this minefield of changes can make or break the success of this new approach.

Changing Loyalties

For example, the laser-like focus on customer satisfaction displayed by the ESC RFP team can be surprisingly disturbing to some. Such a shift in outlook has the power to change every aspect of how those in the acquisition business go about doing their

business — and even how they think of themselves and their basic relationship to their organization. If functionals assigned to a product or process team now owe their allegiance to the team's mission — that of developing a process and serving their customer, as in the above case — then their allegiance has shifted from the old functional chain of command to a team-based, customer-oriented chain of command. When viewed this way, the concepts of empowered cross-functional teams and customer orientation can change fundamental loyalties of each individual on these new cross-functional teams.

Then Who Is My Boss?

Therein lies one of the challenges of implementing this new, but powerful management philosophy. If this approach changes the loyalties of functionals by getting them involved in cross-functional teams that have product- and process-oriented

outlooks, then there are bound to be functional directors wondering if they'll have a job when they show up for work the next day.

It's precisely this worry, and functional managers' concerns about whether functional requirements are being fully considered within the teams, that causes some functional leaders to cast a nervous glance at this new approach. Despite being relieved of the burden of day-to-day management of individual projects and having time freed up to work strategy and process improvements, many functional managers end up giving only a token nod of their head toward this new style of management. Then they hover over any team members they've supplied with concerns of competence and control.

Such scenarios must make functionals assigned to cross-functional teams wonder just who their boss is. Is their first priority pleasing their functional home office, or is it more important to owe allegiance to the team and its mission? It's not hard to guess who a worker will try to please under such circumstances. If their performance tickets are still written solely by the home-office functional manager, their allegiance belongs to the side of the organization chart on which their bread is buttered.

To help resolve such conflicts, some program offices have instituted a policy where leaders of cross-functional teams provide informal inputs to team members' performance reports. The obvious solution, however, is for team leaders to actually sign full-time team members' performance reports. Such a change can make functional leaders even more nervous. Not only have they lost manpower by assigning their people to work on teams, but now they've lost control over those people (and the products and programs they work on).

When he decided to implement cross-functional product teams, the

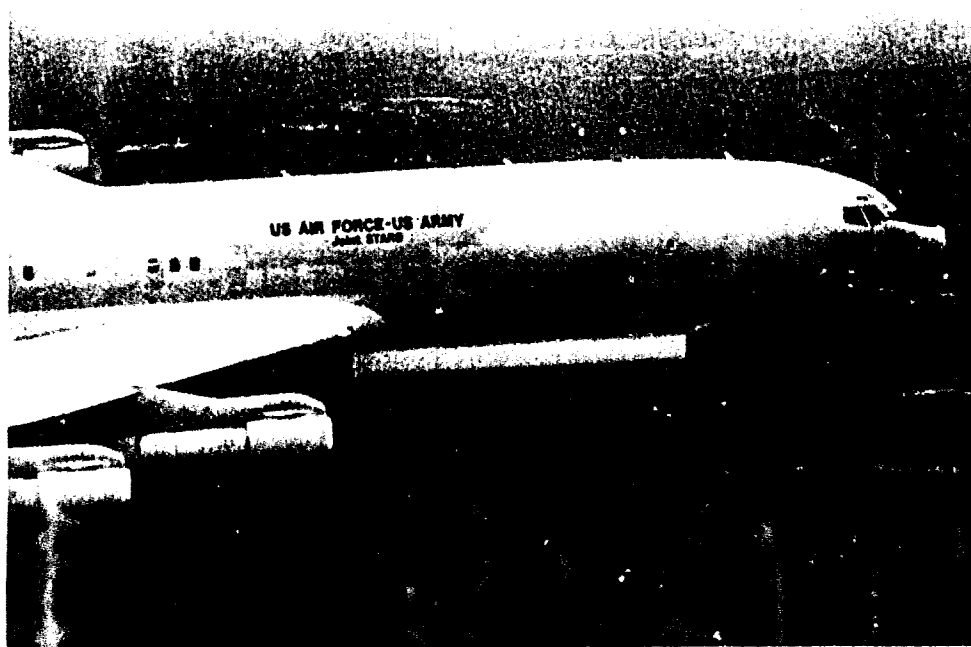
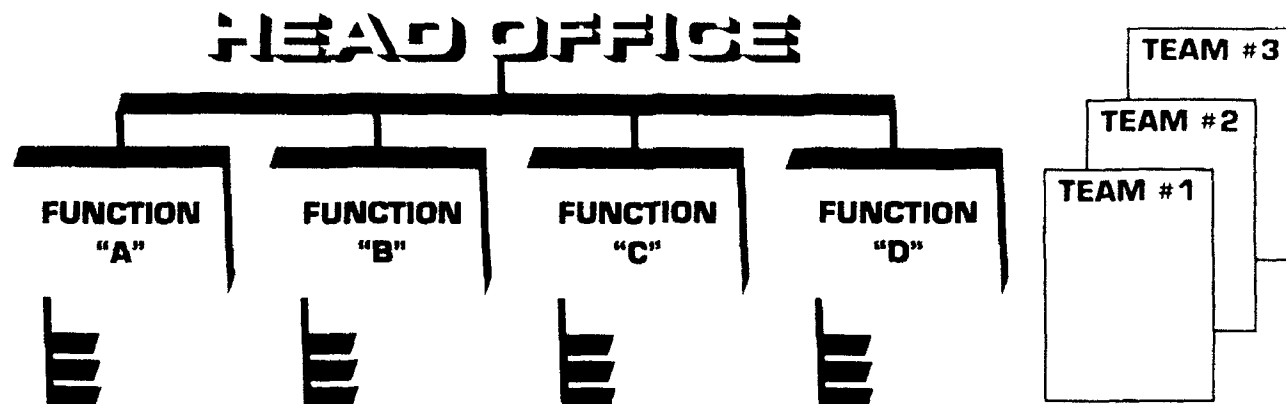


FIGURE 2. Functionally Oriented Structure



program director of the Training Systems Program Office at Wright-Patterson Air Force Base went for the obvious solution. To ensure that the hearts and minds of team members were fully dedicated to the team-based credo in Integrated Product Development, he insisted that all full-time team members report to their team leaders. He soon found, however, that implementing such an idea was easier said than done. Imposing bureaucratic regulations, entrenched policies, and turf battles over who owns whom stood in his way. Suppose you wanted to form a small cross-functional team with a GM-13 system engineer as the team leader and civilian contracting and configuration control specialists reporting to that system engineer? That's just not allowed under current practices. Engineers are supposed to report to engineers, contracting types are supposed to report to contracting types, and GM-13s are supposed to supervise a certain number of people. The Training Systems program director worked his way out of this thorny problem by jury rigging the system, but that's not a permanent solution for others trying to implement this new cross-functional teaming concept. Whether or not program offices and AFMC Headquarters are able to hack their way through this bureaucratic jungle presents one of the most difficult challenges associated with implementing this new concept. Their success or failure in this area could well determine how successfully this

concept can be implemented throughout the Air Force Materiel Command, or whether it will wither on the vine as other, well-meaning management concepts have.

It Can Be Blinding Out There

But it's not only functional leaders and bureaucratic rules that present themselves as obstacles when this new management strategy is implemented. Functionals themselves must break old thought patterns etched in by years of training and culture. Before IPD, their task was to ensure that those well-meaning, but devilish program managers were taking their functional requirements in the program. If they didn't, they reported back to the functional home office for reinforcements to roll in on the program managers. Now with empowerment an integral part of IPD's cross-functional teaming concept, they, not the functional managers, are forced into working difficult trade-off decisions to satisfy team goals and objectives.

Previously, their culture trained them to give the best advice from their functional point of view, but that may not be the best advice in an environment where they now have part ownership of problems associated with balancing cost, schedule and performance. As one wise observer noted, "This is a new world for them. Before, they had blinders on

that protected them from the distractions and problems associated with cost and schedule. When those blinders are removed by empowerment and ownership of the team's mission, such problems can temporarily blind them until they adjust to this new, big picture type of thinking."

Wanted: New-Age Cowboys Lone Ranger Need Not Apply

Still, such dramatic mental adjustments within the functional world are only half the story. Program directors and line managers recognize loss of control too, when they see it. For the past few years, the gospel of strong leader over able manager and a plethora of self-help books on leadership have convinced many that the road to success goes through towns called "Hands-on Control" and "Heroic Leader." The irony associated with such concepts, however, is that the more a leader tries to do and the more he tries to control, the more dominant he becomes in an organization and the less dominant and effective individuals and teams become. David Bradford and Allan Cohen may have put it best in their book, *Managing for Excellence*, when they wrote, "The most paradoxical and frustrating trap for the heroic manager is that greater effort exacerbates the problem. While increasingly Herculean efforts are demanded of the leader, the abilities of subordinates are further ignored, causing frustration and

weakening of motivation throughout the organization. Heroism sets up a self-defeating cycle: The more the manager accepts the responsibility for departmental success, the greater the likelihood that subordinates will yield it, forcing the manager to take more, and so on. The manager is driven to get more involved — to be as central to the department as a nerve center or orchestra conductor — desperately trying to control all the diverse parts of the organization, but still unable to produce excellence."

Such ingrained habits are one reason some say the biggest firmware change in mindsets must come not from the functional world, but from the very people normally most responsible for implementing this new concept — program directors and line managers. Empowering teams and pushing decisions down to the lowest level is in direct contradiction to the popular concept of the heroic leader, a sort of Lone Ranger type that rides into an organization and solves all of its problems. This new concept demands that leaders adopt not only a new organizational orientation, but that they rethink their own roles and become coaches and mentors rather than bosses.

If today's leaders can't make the transition from on-the-field quarterback to that of coach, the concept of moving ownership down to the team level is doomed from the start. Perhaps all leaders and managers who plan to initiate empowered cross-functional teams should review Theodore Roosevelt's thoughts on the subject of empowerment, expressed when he said, "The best executive is the one who has sense enough to pick good men to do what he wants done, and self-restraint enough to keep from meddling with them while they do it."

Paper Tigers and Paper Teams

Once managers' and workers' thought patterns have been recalibrated

to these new concepts, another fundamental question crops up: How do you restructure an organization for this new approach? If program offices really want to push ownership down to the team level and put empowerment in the air, they must do away with their old, functionally oriented hierarchies with their command and control structures automatically wired for all decisions to come out of the head office. Then they must rewire themselves into an organization that's oriented toward empowered, cross-functional teams working their own products and processes. And it can't be done halfheartedly. The troops know immediately if leaders restructure an organization into empowered, cross-functional teams, only to have them ignored, either through habit or design.

Some organizations, reluctant to dive headfirst into this new philosophy, try dipping their toes in to test the water. Instead of reorganizing themselves into a product- and process-oriented organization, they retain their traditional, functionally oriented structure and publish lists of cross-functional teams, assigning programs or projects to each "team" (see Figure 2). Perhaps they reason a

gradual approach is best, or perhaps their psychological dependence on the status quo is just too great to take the plunge. Whatever the reason, they soon find that they have not one, but three internal structures. Along with the original, functionally oriented organizational structure, and the well-known phenomena of an informal organizational structure, they've created a third "team" structure, on paper. Unless they go to extraordinary lengths to retrain their entire organization in this new philosophy and accompany it with a complete rewiring of their command and control structure, they find that organizational memory, like a rubber band, quickly contracts back into its former shape. The old functionally oriented approach reappears as the dominant structure through force of habit, and then they find themselves with "paper tiger" teams who wonder what their real role in the organization is.

Then there are those organizations that decide they'll wade into this pool of change up to their waist. They create a type of hybrid, internally matrixed organization that has product teams superimposed over their functional structure (see Figure 3). These organizations reason that with

FIGURE 3. Hybrid Structure

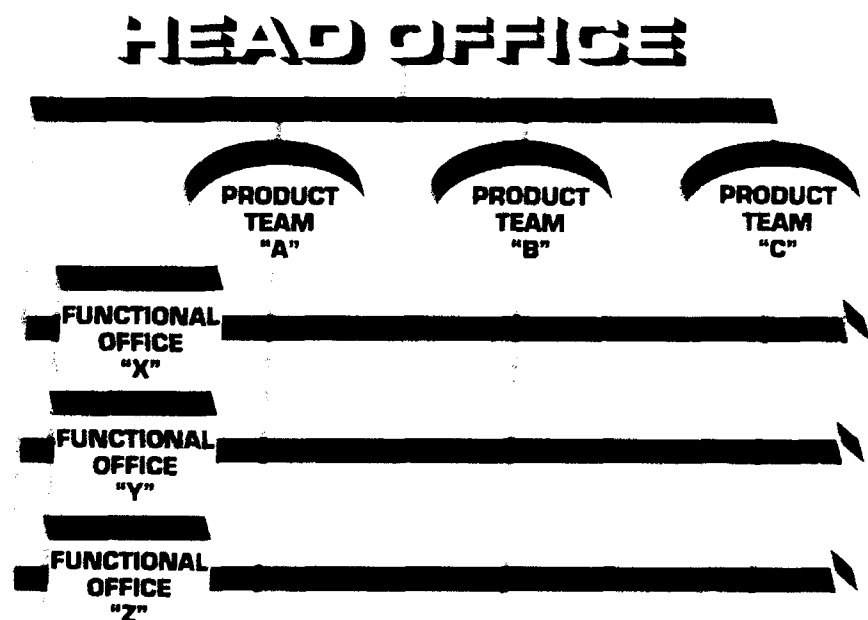
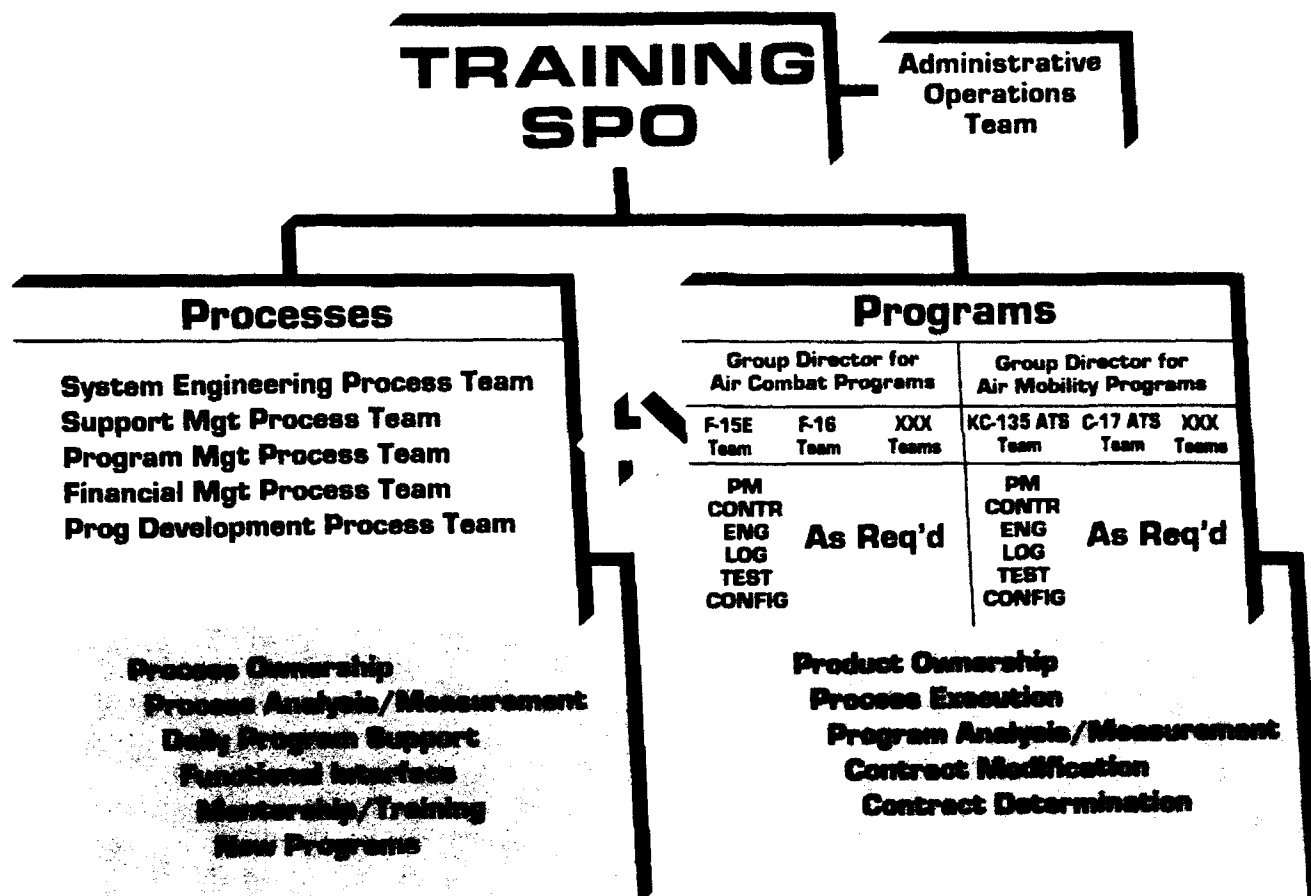


FIGURE 4. Product/Process Oriented Structure



this type of structure, they'll be able to matrix functionals into teams without upsetting the applecart of their functional structure. They also find that without comprehensive and sincere mindset changes, old habits die hard. They discover not only the elasticity of cultural memory, but they also find themselves continually explaining their complex "matrix within a matrix" concept.² And with team members trying to please both their functional boss and team leaders, they end up wondering why team members don't feel ownership of the teams' missions.

When faced with the problem of how to reorganize for this new approach, the program director for the Training Systems Program Office at Wright-Patterson AFB decided to dive in headfirst. He assigned full-time functional members to discrete prod-

uct teams. Then, to get the synergistic benefits of teaming in his support areas, he assigned remaining functionals to "Process Teams," and charged them with: process analysis, on-call support for teams which need specialized manpower or extra help during surges, process policy, process metrics and process improvements (see Figure 4).

While it's tempting to assign a full set of full-time functionals to product teams during such reorganizations, it's not always necessary. A team that's responsible for a product nearing the end of its production run, for example, may not need functionals experienced in developmental or operational testing. Part-time consultation or occasional support from the support areas may be all that's necessary in such a case. And while it's tempting to give the lion's share of

manpower to the cross-functional product teams — after all, their missions are critical to the success of an organization — a compromise must be made. Support organizations can't be forgotten when manpower is handed out. Without them, program offices will soon find their cross-functional product teams bogged down with everything but developing a product that satisfies the customer. However organizations choose to reorganize and reassign their manpower, the key, according to Major General Jim Fain of AFMC Headquarters, is to make sure "The right people are in the right place, doing the right job at the right time."

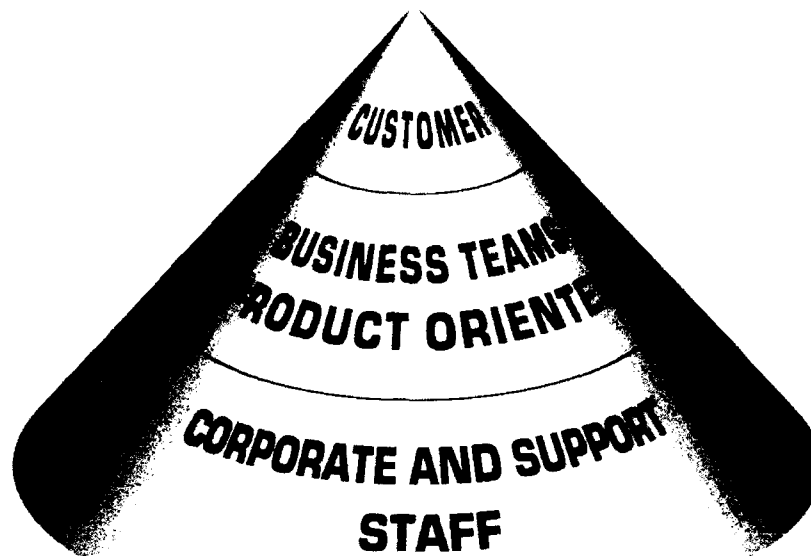
Ideally there would be enough manpower to fully man cross-functional product teams and any support groups required to support them. But there's never enough manpower, and what's available now is going to

become even more scarce as DOD continues to downsize. What this means to those reorganizing for this new management approach is that the choice of where manpower is applied is absolutely crucial. Smart managers recognize and anticipate manpower constraints and apply manpower to the most critical areas in their organization.

No easy solution exists to the manpower shortage, but at least there are consolations under this new philosophy. First, with its strong emphasis on empowerment, the decision on what doesn't get done, whether in the product teams' areas or in support areas, is pushed down to the level that's most knowledgeable about what's most important. Second, one of the basic tenets of this new management strategy calls for a strong dose of process improvement. Diligently applied and aggressively pursued, process improvements have the promise of increasing efficiency and taking the edge off the worst manpower constraints.

Even with the best of intentions during reorganizations, however, many program offices unknowingly draw up organization charts that send subtle messages that the old style of management is alive and well. If, for example, remaining functional offices are depicted as they are in Figures 3 or 4, it becomes all too easy to revert back to ingrained habit patterns and follow the old hard-wired route of head-office-to-functional-area, rather than the desired head-office-to-teams route. To help break this habit pattern, some have proposed a customer-oriented, upside-down organization chart, similar to the one recently adopted by

FIGURE 5. Customer Oriented Organization



Xerox. The Xerox chart shows corporate staff at the bottom supporting business teams and districts at the top (see Figure 5). By depicting an organization in such a manner, important messages about the very nature of this new paradigm are broadcast to workers and managers. It says the customer is the reason for an organization's existence, that the product teams' missions are to provide satisfactory products to the customer, that staff organizations support the teams, and that the old style of management is dead.

Plaster and Concrete

Another powerful, but controversial tool used by those in industry and in some program offices as they implement empowered, cross-functional teaming is the collocation of full-time team members. While it's not listed by AFMC as a required element of IPD, many believe placing team members together provides the essential catalyst that makes cross-functional teaming work — enhanced communications. Others argue that with today's high tech E-mail systems, collocation is not necessary to improve communications. But talk-

ing to a cathode ray tube is just not the same as talking to a person. Tom Peters, coauthor of the highly popular *In Search of Excellence*, and author of *Handbook for a Management Revolution* puts it this way: "Walls of concrete and plaster are very important — and inimical to team work. Numerous studies chronicle the astonishing exponential decrease in communication that ensues when even thin walls or a few dozen feet of segregation

are introduced. Hence all team members must 'live' together. It's as simple as that."

Perhaps more importantly, doing away with walls of plaster and concrete can allow that elusive concept of team cohesiveness to become a reality. Teams who live together, stick together. Team cohesiveness is increased and the powerful forces of group dynamics are mobilized. Individuals begin including team goals as part of their individual goals, and teams begin to develop their own culture. If grouped together within a larger organization, they begin taking on a feeling of independence. And with that, they begin solving their own problems, putting a capital "E" in empowered.

Even better, teams who live together, work together. True teamwork is established, with individual strengths maximized and weaknesses minimized. In such a scenario, the whole can end up being greater than the sum of the parts, helping once again to save scarce manpower. Adversarial relationships of the past can be replaced with partnerships for the future as team members work

together to solve team problems rather than organizational problems.

Along with improved cohesiveness and teamwork can come improved morale and *esprit de corps*. The troops love the freedom and sense of purpose associated with being part of a close-knit group. Feelings that they're just a cog in a large machine are replaced with the feeling that they are an integral and important member of a separate and special group.

While collocation can perk up communications and give cohesiveness and teamwork a shot in the arm, arguments against it spring up like rumors at an office party when it's mentioned. First, there's the space and facilities problem. Opponents argue that today's available space doesn't lend itself to collocation and that existing facilities have to be modified. Then there's the argument that ongoing activities will be disrupted while team members pick up and move to another location. Supporters counter with collocation's benefits and the argument that objections to it are really smoke screens to cover the underlying concern — the control issue. Assigning your people to teams with its attendant loss of loyalties is one thing, but moving them out of your area? Enough can be enough, causing such concerns to blossom into outright rejection of the cross-functional teaming concept when collocation is mentioned.

With such obvious benefits, it's surprising more CEOs and program directors don't insist on collocation of full-time team members when implementing the cross-functional teaming concept. While it's true strong leadership can counter the absence of collocation, even inexperienced leaders find that collocation can create a chemical reaction catalyzing a list of individuals into a team. It can be difficult to implement, and it's certainly not practical for *ad hoc* or "tiger" teams, but, without it, teams often end up being just a group of individuals work-

ing on a product in parallel. They may be called "teams," but they don't feel like teams. Communications remain the same as before with assigned team members not knowing how their piece fits into the whole until they get together for periodic meetings. Worse, team members assigned to product teams end up thinking they're working out of the latest renamed matrix organization, assigned to support projects through some new assignment list called "Integrated Product Teams."

Soup to Nuts

Yet, dramatic shifts in attitudes accompanied by drastic changes in organizational structure are still not enough to transition to this new concept — even with the use of collocation. Program directors everywhere are discovering that when they lay their pencils down after drawing up a new organization chart, the job's just beginning. Once an organization's structure is changed, the massive rebuilding of organizational procedures, management support systems, lines of communications, roles, missions and responsibilities must be accomplished.

Teams must be formed and members chosen, being careful to include those who are open to new ideas. Users, as customers, should be solicited for team membership and new lines of communication must be established with users and contractors. Team charters must be written with clear goals and objectives, roles and missions, meaningful and detailed boundaries. Team and management consensus must be included to prevent confusion from team members and concern from managers later on. Review and reporting procedures with metrics of team progress must be established in a way that teams are neither stifled in their creativity nor forced to spend all their time writing progress reports and building briefings. Processes used to fulfill the product teams' mission must be

thought out and procedures to improve those processes established.

And the checklist goes on. To properly implement IPP, an organization must be rebuilt from soup to nuts. Imagine rewriting all administrative instructions, operating plans, setting up a new electronic mail structure, and establishing new procedures for interfacing and integrating team activities. Award systems should be revamped to recognize team accomplishments rather than just individual achievements. Training programs need to be established to train managers and troops alike in this new way of doing business.

And if that's not enough, remember that unwritten policies and traditions developed during the years must be replaced with a new culture base. Many of today's management gurus believe most leaders underestimate the magnitude of effort required to change entire organizations. After studying the ways and means of organizational change, Edward Lawler, director of the University of Southern California's Center for Effective Organizations, says halfway measures won't work, that "You've got to change the whole system."

It takes a tremendous amount of energy and constant vigilance to make even small changes in an established organization. To make a change as broad-based as the conversion to a product and process-oriented organization with empowered, cross-functional teams requires an almost religious dedication to change and process improvement.

Transition Aids

To help themselves transition to this new way of doing business, program offices and those in industry are pursuing various methods with various degrees of commitment. Some have put full-time consultants on the payroll as change and process improvement advisers. Others have

formed special management support groups, responsible for making the myriad changes necessary to convert to this new management philosophy. Some have merely initiated an organizational change, set up special briefings for their members and left it at that. On the other side of the scale, companies like Eastman Kodak and American Express have appointed senior officers to manage and force-feed such a cultural change. To demonstrate their full commitment to this concept, AFMC has formed special "Process Action Teams" and assigned a two-star as champion of their Integrated Product Development concept.

End of the Rainbow

Whatever methods are used, the impetus and energy for the conversion to this new and improved version of program management must come from the top. Indeed, "conversion" may be the right word for more reasons than one. To implement such far-reaching changes, leaders must have a commitment that borders on the messianic. Frank Allaire, CEO of Xerox, for example, walks around his company with a checklist in his hand that he uses for converting his company to consultant David Nadler's concepts. Such leaders understand that natural resistance to change can be the single most difficult obstacle to overcome. They know that objections, borne of this resistance to change, can flow through an organization and slowly drown any hopes of conversion if constant pressure is not applied. Some organizations find it's just too much, and the inertia of culture stops the conversion in its tracks.

Other organizations try to lessen the pain of conversion by going half-way, stagnate and lose their place as one of the best. But some have the luck of enlightened leaders, "change masters" as Rosabeth Kanter, Harvard Business School professor and author of *The Change Masters* calls them. For those organizations that are successful, the substantial benefits of re-

duced development times, lowered production and support costs and improved customer satisfaction wait at the end of this rainbow of change.

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Endnotes

1. Throughout this article the term "cross-functional teams" will be used. When used it should be understood that cross-functional teaming includes the concept of what is called concurrent engineering; i.e., the concurrent and coordinated integration of all affected technical specialties throughout the life of a project. The reader should note that the DSMC definition of program management with its "timely integration of different specialties...into a coherent, coordinated effort" also calls for the use of concurrent engineering.

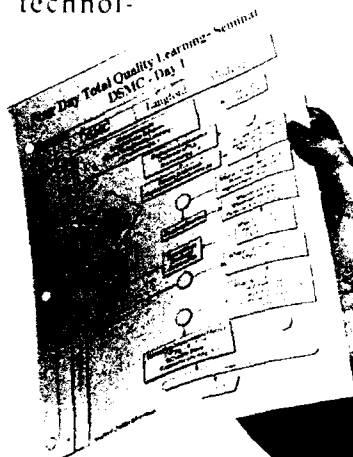
2. In the Air Force, most functionals are already matrixed in from Product Center functional offices.

THE LANGFORD CONCEPT

A Fresh Approach to Training in TQL

In January, the Defense Systems Management College (DSMC) held the first of three, four-day seminars on Total Quality Learning (TQL). The goal of TQL is to enhance education through continuous improvement of processes by using quality tools, techniques and theories.

The TQL seminar is led by David P. Langford of Billings, Montana. Mr. Langford introduced the concept of Total Quality Management to education in 1988 while on the staff as the technol-



ogy teacher/coordinator at Mt. Edgecombe High School in Sitka, Alaska. (See July-August 92 *Program Manager*.) In Alaska, Mr. Langford started with his own classes; however, he and his students were able to influence colleagues, the school administration and, eventually, the State of Alaska officials to



David P. Langford.

incorporate quality into the learning process. Students from these classes have given presentations on how to improve education throughout the United States, England and Canada. Mr. Langford was recently featured in the film "Quality...or Else," aired on PBS.

Total Quality Learning uses the quality philosophy to examine the critical elements necessary for quality learning. These elements include awareness of the need for quality; purpose and vision; improvement drivers that move the change process;

**Total Quality
Learning uses the
quality philosophy to
examine the critical
elements necessary
for quality learning.**

Groups of 8 to 10 work together using the quality theory, tools and techniques to understand and begin to use this model for change. The TQL looks at the classroom as a system, the students as customers, and the instructor as the manager of the system. From this paradigm, a key focus in the classroom is to understand the requirement of the customers and create a system which meets those needs.

One element of the communication network is "The Quality Improvement Story." This is a portable mural with the key information of the process being improved. The story generally tells the initial condition, a definition of the system, project, an analysis of the current situation and the causes, the improvement theory, the results, the standard for the improvement and the future plans. This follows the Shewhart Cycle of "Plan, Do, Study, Act" to continually improve. Like TQM, this process relies heavily on data and facts, not opinion. Eighty-three members of the DSMC staff and faculty completed the training along with seven other DOD members.



Henry C. Alberts, Principal for Acquisition Policy, DSMC, and Norman A. McDaniel, DSMC professor.

leadership initiative; focus on colleagues and society so that their requirements are met; participation, involvement and teamwork; communication networks; training and education in systems, variation, knowledge and human interaction; continual improvement by using the Shewart Cycle of Plan, Do, Study, Act; quality tools which enable teams and individuals to solve problems and work together efficiently; reinforcement and support; and, assessment and future planning.

The 4-day seminar is grounded in the philosophy of Dr. W. Edwards Deming and is experiential in nature.



Lt Col Barry A. Eller, USAF, and Joseph H. Schmoll, DSMC faculty.

MANUFACTURING

In the New Integrated Weapon Systems Management (IWSM) Environment

Lt Col Les Andersen, USAF

No one will argue that the drive for concurrency in today's acquisition environment can produce significant savings in scarce resources. There is considerable discussion, however, concerning how concurrency will be carried out by the various acquisition functions. Taking the draft MIL-STD-499B as a guide, the Air Force Material Command (AFMC) Engineering and Technical Management Directorate is developing a methodology that will give manufacturing an early involvement in the acquisition process.

The HQAFMC, working with manufacturing professionals from across their command, has set up a Manufacturing Implementation Team (MIT) to help define the future of manufacturing by proposing changes to the way they do business.

Under leadership of Mr. Don Conwell from the Wright Lab Manufacturing Technology Division, and Lieutenant Colonel Ben Jubela, from the AFMC Engineering and Technical Management Directorate, the MIT is advocating early involvement of manufacturing in the acquisition process, pushing technology insertion,

and adding increased emphasis on process technologies.

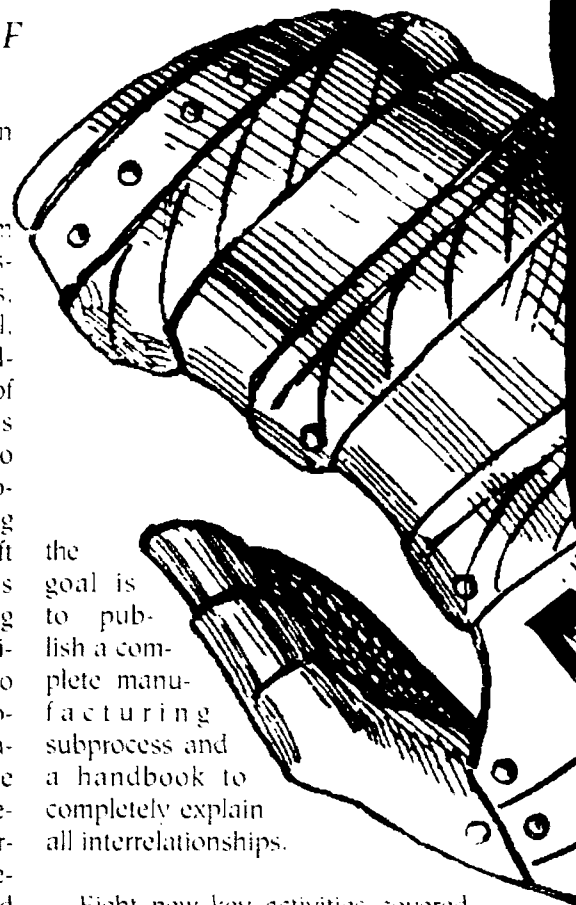
The MIT, with representatives from all AFMC Product Centers, Air Logistics Centers, Wright Laboratories, Brooks Systems Acquisition School, HQ AFMC Manufacturing and Quality Directorate, Air Force Institute of Technology, and the Defense Systems Management College is chartered to integrate this new manufacturing process into the new system engineering (SE) process, as defined in the draft of MIL-STD-499B. This includes clearly defining each manufacturing activity, changing the existing policies, procedures and regulations to ensure compatibility with the SE process, and developing necessary training for the manufacturing work force to facilitate a successful IWSM implementation. The MIT has the opportunity to validate, improve, and implement manufacturing, quality, and industrial base processes across the entire weapon system acquisition life cycle.

The MIT is headed by an executive group and is divided into three subgroups. Each of the three subgroups focus on specific areas involving process, policy, and training.

The Process Group headed by Mr. Bill Marks from Aeronautical Systems Center/ENMMS has been chartered to perform a command-wide review of the SE manufacturing subprocesses;

the goal is to publish a complete manufacturing subprocess and a handbook to completely explain all interrelationships.

Eight new key activities covered by the Process Group are Manufacturing Capability Requirements (MCR), Manufacturing Process Capability Assessments, Manufacturing Strategy and Risk Reduction, Program Specific Industrial Base Assessments, Manufacturing Cost Estimating, Industrial Process Environmental Assessments, Depot Capabilities Planning, and Post Production Planning. These key activities help fuel the "Systems Engineering Engine" (See Fig. 1 for example) which drives each major review throughout the SE process. This engine is the heart of a much larger



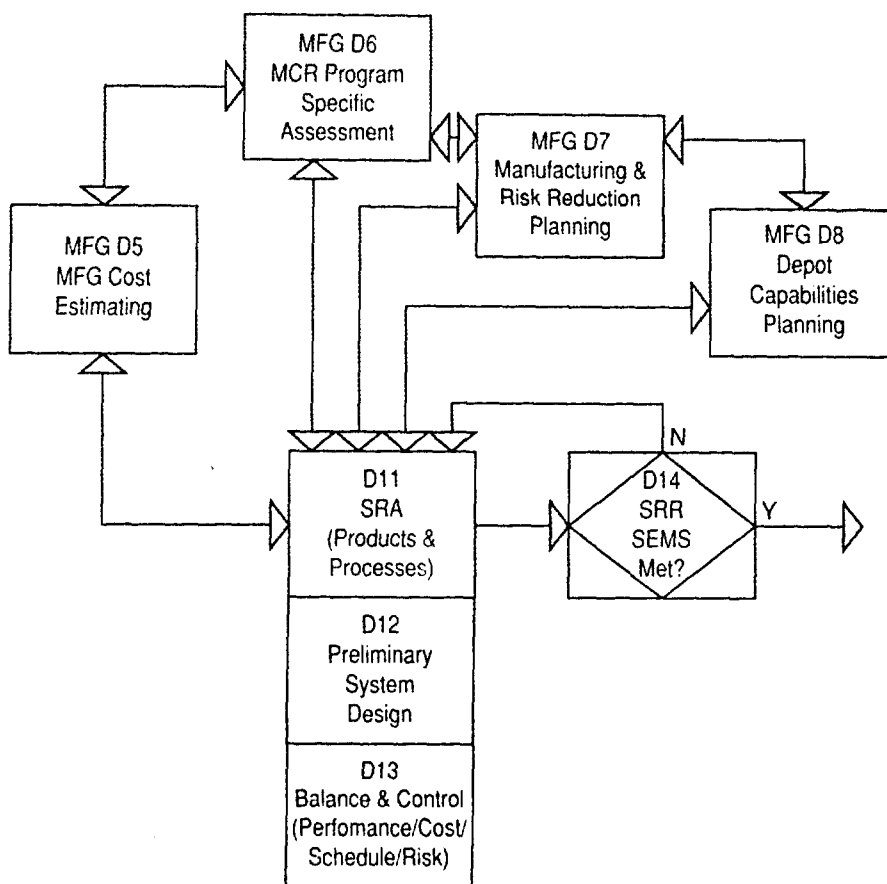
Lieutenant Colonel Andersen is a professor of engineering management at the Defense Systems Management College.

flow covering the entire acquisition cycle of weapons systems development.

The Policy Group headed by Major Dave Keenan from AFMC/ENME is updating, reviewing and implementing key changes in acquisition policies and regulations. The group is reviewing existing policy and practices to determine changes/additions that may be needed as a result of current activities. This includes providing a common definition for the term "manufacturing," drafting model language for request for proposals, statements of work, etc., for field use; and, also working with other teams within AFMC Headquarters on tough issues such as using new international quality standards.

The Training Group headed by Lieutenant Colonel Les Andersen from the

FIGURE 1. Systems Engineering Engine



DSMC Manufacturing Department is developing a three-prong training approach for the AFMC work force.

Phase I, *Awareness*, provides an overview for Integrated Product Development (IPD) teams, discusses new factors involved in the manufacturing process, and shows manufacturing contributions to affordability, supportability and balanced design.

Phase II, *Understanding*, demonstrates IWSM's impact on the manufacturing process, shows how manufacturing is integrated into the seven major

technical reviews, and discusses entry and exit criteria.

Phases III, *Application*, provides the "what" and "how to" for manufacturing's eight new tasks and shows how manufacturing operates as a fully integrated member of the IPD team.

The three subgroups are working toward the common goal of creating the future IWSM process for manufacturing. This creation will not take place overnight, and the MIT can only assist in making the change happen.

In reality, implementation of these new ideas will require changes in attitudes and ideas that have been firmly ingrained during many years. The greatest contribution each individual can make is to be flexible, open-minded and willing to change.

"SMART SOURCING"

A Powerful Tool for the Program Manager

William C. Hillsman

To be internationally competitive, large U.S. companies are reducing costs by cutting their work force, or "down-sizing." Even small companies have reduced their work force to match capacity to current markets and survive the economic downturn. At the same time, the Department of Defense is reducing the size of the active duty military force and terminating ongoing programs to live within drastically reduced budgets because of the reduced Soviet threat. Other U.S. government agencies are under pressure to scale-back because of the need to reduce the government budget deficit.

Across-the-board "down-sizing" may not be the answer. Because of the possibility of a lack of overall directional thinking in this process, there is a threat of "cost creepback,"¹ or cost overruns built into scaled-down existing and future programs.

There are indications now in some segments of our economy that companies have reduced their work force too far and now may need to "up-size."² Regardless of upsizing or down-sizing, "right-sizing" is necessary to

meet program objectives on schedule and within the established budget.

Out sourcing, or subcontracting, is one answer to fill in gaps for prime contractors trying to "right-size." Even better, prime contractors need to use "smart sourcing."

What is "smart sourcing" and how can it help the program manager of

the '90s? Smart sourcing is a process for getting what you need to accomplish your program objectives in the best possible way, regardless of whether you perform the entire program within your own organization or go elsewhere. Smart sourcing provides the right balance between all viable options available to the program manager: e.g., using in-house or other capabilities. Once a source decision is made,



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the program manager must use appropriate follow-up management at all tiers of the program.

How do you "smart source?" First of all, you may want to revisit the basics: Reexamine your program objectives. What does your customer (user) want?

Federal Express won the Malcom Baldrige Award for excellence by focusing on customers. What do customers want? The basic contract that Federal Express has with customers is to deliver packages on time to a given address. What do customers really want? According to Federal Express advertisements, customers say:

I WANT IT ON TIME and in the proper hands. I want it done correctly, accurately, exactly,

Out sourcing, or subcontracting, is one answer to fill in gaps for prime contractors trying to "right-size."
Even better, prime contractors need to use "smart sourcing."

precisely, perfectly, efficiently, reliably, expeditiously, faultlessly, totally, absolutely, unequivocally, unmitigatedly, maturely, flawlessly, supremely, unsurpassedly, and certainly without fault. I want it unharmed, unbotched, untainted and unscrewed-up. And most of all I want it done CHEAP!

As a government program manager, how do you meet the challenge of satisfying customers whose objectives and schedules seem to be inconsistent with available budgets?

—First of all, you probably will use every tool at your disposal to define your program to meet your customers' needs within cost and schedule constraints.

—Next, you may decide who does what.

—What tasks do you retain in the program office?

—What tasks will other government organizations or agencies perform?

—What about "not-for-profit" organizations?

—Do you need help from industry?

If you need help from industry, you pick the best prime contractor, one who has a proven track record and can do the job, on time and within cost. You match the company's capability with your needs. You weight your selection criterion heavily based upon past performance. You still risk failure. Why do you risk failure even though you have selected the best contractor using proven system acquisition techniques? Your program is at risk because your contractor may not be able to perform as well in the future as he has in the past. For example, one of the finest prime contractors in the country received the following letter from an Air Force program manager.

Several Contract Performance Assessment Reports have indicated a problem with your



ability to adequately manage subcontractor efforts on a program. Specifically, your ability to provide insight into problems, and the early identification, resolution, and prevention of subcontractor difficulties in general is questionable. In particular, these problems have been observed and documented in the...development programs and the... production programs. Since you propose to use subcontractors for about one-half of your effort, please clarify what steps you have taken to remedy this situation and to insure that these problems won't occur on the program.⁴

The comment was valid.

During the downsizing process, the contractor may have lost the "recipe" for excellence that he once had. He may have lost the "critical mass" of key people needed in manufacturing, design, systems engineering, or integration and testing. One way to rebuild critical mass is to "upsized." How does the contractor upsize? One way is to grow internally; another way is by subcontracting, or out sourcing. How does he "smart-size?" By "smart sourcing."

For a prime contractor, "smart sourcing" involves every aspect of his business. It begins before receiving a request for proposal when the small program office cadre develops a winning proposal strategy. "Make-or-Buy" decisions made at this point set the stage for success or failure throughout the program. Although all major prime contractors have government-approved procurement systems for out sourcing, "smart sourcing" goes one step further in implementing proven procurement systems.

For example, before the subcontractor starts work, the prime contractor should follow the advice of Ross Reck, author of the *Win-Win Negotiator*,⁵ as follows.

There is a potential danger associated with U.S. companies reducing their work forces to the point of not being able to perform as effectively in the future as they have in the past.

Plan

—*Define what you want.* It is essential to clearly define the subcontractor's work in detail. The statement of work, including performance specifications, delivery dates, degree of visibility into the subcontractor's performance, and interaction between the prime/subcontractor should be clearly defined from the beginning, discussed in detail, understood, and mutually agreed to between the prime/subcontractor (on a line-by-line basis) before work begins. Better yet, use proven concurrent engineering techniques⁶ to save time and money by having the subcontractor help you develop the statement of work and performance specifications.

—*Determine what the subcontractor wants.* The following is an example of some things a typical subcontractor wants.

—Clearly defined requirements or a flexible contract

- Work that will enhance his reputation for excellence
- Professional growth for employees
- A fair profit
- Freedom to do his job without excessive interference
- Future business.

Develop Relationships

The prime contractor's program manager and key members of his program office need to understand the subcontractor's key people: who they are, what they do, what motivates them, how they communicate internally,⁷ what the prime contractor can do to make their life easier and vice versa.

Develop an Agreement

In many cases, formal deals are made before clear understandings are solidified. Clearly, the subcontract itself is critical to overall program success; however, in many cases, formal deals are made before clear understandings are solidified. Clearly, the subcontract itself is critical to overall program success; however, if the program manager relies solely on this stand-alone document for program success, while ignoring the human element of the process, his program could be in trouble.

Maintain Relationships

Throughout the life of the program, it is important for the program manager (or that individual delegated to be the subcontract program manager) to "lead" the subcontractor and the subcontractor's team. To do this effectively, the same leadership skills⁸ necessary for leading the program office team are essential for leading the subcontractor team. During this process, the prime and subcontractor often help each other in developing new business relationships for mutual benefit. The process of maintaining relationships should not be ignored, as it is an essential secret ingredient in overall program success.

Some prime contractors manage subcontractors very effectively, others don't because:

—Effective subcontract management is not encouraged by their company culture.

—Program managers are rewarded primarily for their successful management of complex in-house high technology effort. In-house activity often has a higher profile within large companies than merely managing "vendors" (even though they sometimes do more than 50 percent of the total work).

—Rather than holding program managers accountable for the total program, sometimes the procurement system is blamed—or the subcontractor is blamed for his failure to perform.

—In many cases, prime contractor program managers don't know the difference between managing in-house work and managing subcontracted work.

What is the difference between a prime contractor managing in-house work versus managing subcontracted work? The key is to select the right subcontractor to do the job in the first place. Prime contractor program managers know their own company well. They know their company's strengths and weaknesses. They understand their own company culture, how they are organized, how they communicate internally, who the best people are for what job, and how to operate effectively internally. In many large companies this is a full-time job in itself."

It sounds simple. All the prime-contractor program manager has to do is manage his subcontractors the same way that the government program manager manages the prime. This requires the same leadership and management skills that government program managers in DOD, NASA, and other agencies have developed and refined effectively for more than



**Successful
subcontracting
means making
the right choice...
not the cheapest
choice.**

40 years. Program managers such as Admiral Rickover, General Phillips, General Bellis and General Abrahamson have become folk heroes because of the fine-tuned management skills that they displayed in managing large, complex national programs critical to the defense of our nation. Unfortunately, some prime contractors have not been effective in developing program managers who have these system acquisition and management skills.

Conclusion

There is a potential danger associated with U.S. companies reducing their work forces to the point of not being able to perform as effectively in

the future as they have in the past. One approach to smoothing the transition from an undersized, imbalanced work force to a balanced team essential for accomplishing program objectives is to use "smart sourcing." Effective subcontract management is a key element of this process. The DOD, NASA and other government agencies have developed and refined powerful tools for managing prime contractors. Unfortunately, these tools are not being used effectively by all prime contractors. There is a need for both government and industry program managers to be sensitive to these issues. Government program managers should ask penetrating questions of industry CEOs to determine whether industry should reevaluate their internal strategies to balance in-house work and subcontracted work in view of work force reductions.

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HOW CAN WE MEASURE LEADERSHIP PERFORMANCE?

Using Aerospace and Defense as Benchmarks

JT Carr

"The remarkable thing about achieving quality," said General John Michael Loh, commander, Air Combat Command, "is that regardless of our industry or affiliation, we go about doing it the same way—through leadership. True, there may be histograms, flow charts, and team meetings...but they are not the engine that propels the organization forward—leadership is.

"Leadership is overlooked frequently....Quality is not the product of a detailed management system. It is a result of a comprehensive style that permeates an organization." Organizational inertia works against changing the way you do business, he says. "The only way to reverse these trends is to walk the way you talk. Reward and promote those who demonstrate their commitment to quality."

People everywhere are planning, managing and measuring quality improvements, yet many decision-makers implement these efforts without an appropriate understanding of how

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to recognize and measure performance. Are we rewarding quality work? Smart work? What ARE we measuring? Things that get measured get rewarded.

A performance measurement criteria that can be standardized for leaders and staff can measure performance based on (1) productivity, (2) teamwork, and (3) entrepreneurship. The key to measuring performance is productivity.

Productivity: What is productivity? It means different things to different people. It is neither practiced consistently nor well understood. Let's first examine what productivity is. Productivity includes: quality work, instead of fast work; smart work, instead of busy work; and, simplicity, streamlining.

Quality Work, Instead of Fast Work, Means Understanding the Processes

Understanding what quality work means is understanding the processes. Admiral Frank B. Kelso II, Chief of Naval Operations, in issuing guidelines for making TQL a success, urges "words alone don't solve problems. Look first at the process..."

Many people in complex defense and aerospace programs understand the basic processes such as: (1) the

planning and control process, (2) the life-cycle process, and (3) the writing process and, as such, can be used as leadership benchmarks for other industries. Some people, however, perhaps fail to see the application of these processes to simple, daily management functions. Others nod their heads in recognition of these processes but share a different view of the steps associated with these methods. Until we slow down, simplify the steps and agree on similar nomenclature, we will constantly be speaking past one another, forever frustrated with our lack of agreement, lack of simplifying common processes, and lack of significant achievements in quality.

Bruce Baker of SRI International confirms that, "Surprisingly, many companies have not defined (1) the phases through which a typical project progresses; (2) what demarcates one phase from another in the form of decisions, approvals, documents released and the like; and (3) such elementary terms as 'preliminary design review' and 'final design review'. Different people within the same company attach quite different meanings to the same terms."

Let's examine these processes briefly.

Life-cycle Process: There is a distinct difference between the product

to be developed and the process that builds the product. The process that builds the product is the life-cycle process whose steps can be simplified to define, design, develop and deliver. Sometimes the phases are understood but little attention is given to the role of the customer, and the value of Preliminary, Critical, and System Design Reviews. Untangling (1) the process of building the product (life cycle) with (2) the process of planning and controlling the work (planning and controls)...would assist managers in feeling more secure in understanding how to structure and manage their work and how this work fits into the bigger picture of the life cycle.

Planning and Controls Process: The process of planning and monitoring the work is an existing and effective process used within aerospace and defense. There are specific steps to this process and it is integrated with and is a part of the life-cycle process. These steps, SOW, WBS, and schedules, if structured correctly, can be measures of quality in the planning process. Every time some work has to begin or an assignment is given to anyone, the planning and monitoring process begins. The process already exists and the steps are defined. Perhaps some tailoring might be necessary for a specific application. The planning and control process should be used by managers, self-empowered teams...all people...whenever planning is needed.

These same steps can serve both as performance measures, and communication tools for staff and leaders.

Captain Terry Adler, and Lt Col Greg Kuntz, both with the Aeronautical Systems Division of Wright-Patterson AFB, support using the SOW for strategic planning, saying "We have found, by surveying numerous Air Force program managers, that there is widespread confusion, misunderstanding, and misconception regarding statement of work (SOW)



preparation...and [SOWs] are not of the quality they should be. Magnifying this condition is the importance of the SOW to an organization's strategic plan."

Bob Bergseth, with Air Force Institute of Technology at Wright-Patterson AFB, and Lt Col (Ret.) Les Swanson of Boeing Defense & Space Group in Seattle, urge the use of the SOW, WBS and other management documents to measure quality. Dr. Ralph Miles, consultant in aerospace systems engineering, and formerly with IPL, agrees, saying "It is the maxim of good management that in order to manage something, you must be able to measure it."

Writing Process: Since much of the planning and managing function is writing, it is imperative for leaders to understand that:

- (1) writing is a process which has structure,
- (2) its outcome is a document (something written),

(3) the document must be planned and managed, (planning and controls structured process) and

(4) the document has a life cycle whose development phases must be defined, designed, developed, and delivered. Note that the processes have logic and structure, repeat themselves, and are continually integrated.

Edmond Weiss suggests strategic planning for documents and offers a structured method for planning, writing and revising in less time and with greater results. James Souther and Myron White at the University of Washington urge that writers follow a structured design approach in technical writing.

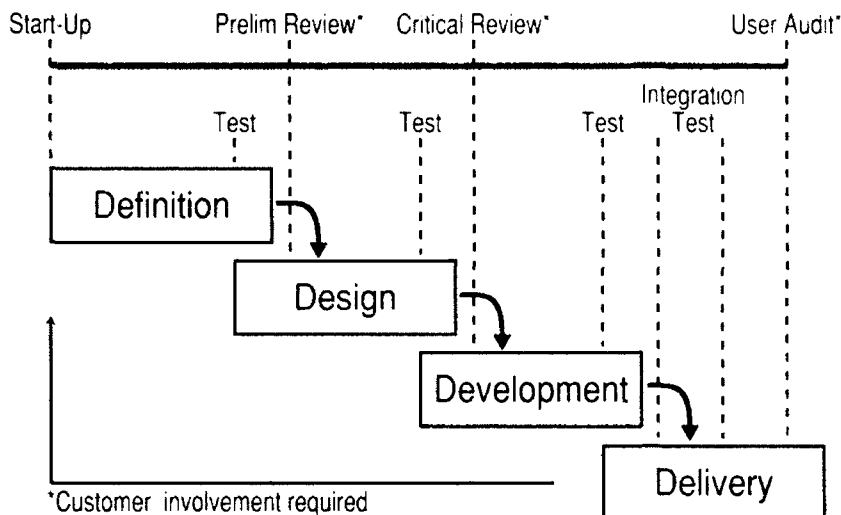
These systems and functions have already been defined. What's needed is to (1) simplify these methods, (2) agree on terminology, (3) perhaps tailor the steps to meet new needs, and (4) apply them creatively to new areas.

Smart Work. Instead of Busy Work

In these complex, busy times, we can no longer continue to work the same way we have in the past. We need to think creatively before we act, find new methods to accomplish work...and find new uses for existing resources. We need to streamline our efforts, and give thought to lessening our work. In other words, we need to work smarter, and should be rewarded for practicing these principles. One way is to practice and better understand productivity techniques and tools

Mind mapping is a non-linear method of note taking. It is a productivity tool that can be used for problem solving, to generate ideas, and in making notes. When the process of planning, for example, is taught with a productivity tool such as mind mapping, less time is needed to write items down, and less effort is expended to accomplish well-structured documents. Mind mapping can easily generate

FIGURE 1. The Life Cycle



the SOW, WBS, specifications, requirements, and other management documents when incorporated with the writing process. Further, understanding that the process of creating the WBS is similar to the process of developing spec trees, for example, can assist people in recognizing and accomplishing similar functions more easily.

Productivity techniques such as: have more than one use for something, put it in writing, do all the same function at one time, keep it simple, and do the easiest first...must be encouraged, practiced more often. People should be measured and rewarded for making them a part of their daily thinking processes and performances.

Examples include:

—When sending a fax, can it be designed for two audiences, rather than one?

—In communicating with someone, can a fax be more productive and effective than a telephone call?

—Can information be summarized and simplified on one sheet of paper instead of two?

—Can a report, memo, or product be designed for two audiences and/or uses rather than one?

Simplicity and Streamlining

Captain Helmut Reda of National Aero-space Plane IPO at Wright-

Patterson AFB, when commenting on how to streamline an organization and combat bureaucracy, reminds us: "Too much bureaucracy in organizations is a leading indicator of possible deepening problems such as politics or empire building, incompetence, fear of change, [and] weak leadership."

Roger Schauffele, retired from Douglas Aircraft Co, speaks of "reintroducing design/build teams," explaining that "in the early days...before any design work started...the chief design engineer would assemble a small group of people, each one an expert in...the entire design and production process, to decide how the design would be done...the modern approach is...known as Integrated Production Definition or Concurrent Engineering...."

Using simple terms, simplifying the processes, and understanding how they are integrated would provide a sound basis of terms, processes, and the what, how and why they work. Rewarding simplicity would promote the achievement of quality.

Case Study #1. PROIEXPO-92 Conference Director Don Dible invited several industry leaders to design various 3-day technical track agendas based on a multiple theme of concurrent engineering, strategic planning and program management.

Performance Measures. The Aerospace Defense Chair established the lead by modeling performance based on productivity including simplicity, smart work, and quality work as defined in this paper [as well as teamwork, and entrepreneurship].

Discussion. Prospective aerospace speakers were contacted. A simple one-page statement of work was drafted, containing the work to be performed, major milestones, responsibilities of the members, and performance evaluation criteria and requirements.

Example of Quality Work. The Aerospace Chair illustrated Quality Work by implementing the first step of the planning and control process, which was a one-page SOW summary. The SOW is part of the Define stage of the Conference life cycle, a part of the bigger picture.

Example of Smart Work. Several productivity techniques and tools were used:

(1) A SOW was drafted (Technique: put it in writing) in order to communicate the invitation, to increase understanding, and to save time, costs and effort.

(2) This SOW was faxed (Technique: productivity tool) to prospective speakers. By using the fax, the recipient was assured of receiving the information correctly, could respond when time permitted within the requested time frame, and had a sufficient understanding of what his/her responsibilities were. The turn-around response generally occurred within 2 working days.

(3) Sometimes the fax had two names on it. (Technique: more than one use for something) and was sent to people who were partnering in the program. Thus the fax had two purposes, both to inform each individual and to inform each other that the partner had been contacted. Faxes

were sent at the same time (Technique: do all the same function at one time).

(4) Mind mapping (Technique: Productivity tool) was used for note taking during telephone conversations; to record new ideas, problems, concerns, requests, for designing presentations; to illustrate concepts in pictorial format using overhead projector; and for filing purposes.

Rewards. Dible standardized the rewards with each functional group (chair/cochairs/speakers) receiving, at a minimum, (1) money, (2) recognition, and (3) fun.

Results. Good communication is the effective transfer of ideas from one human being to another. This was achieved in a variety of ways. People were contacted with relative ease and economy; information was provided regularly by fax that answered most questions; and a simple newsletter was instituted to keep the team informed as to the progress of the conference.

Case Study #2. In a large aerospace company, an automated registration system was sought by management, staff and customers but a 5-year, development-time estimate was provided by the computer department.

Performance Measures. Management and staff used a standard performance criteria of (1) teamwork, (2) productivity, and (3) entrepreneurship to measure their individual performance. Freedom to practice creativity, entrepreneurship, and productivity was rewarded.

Discussion and Results. By this time, the team had streamlined and



standardized most of the registration functions. With the assistance of a computer specialist, creativity and entrepreneurship were illustrated by using a piece of an existing registration system, and modifying it to fit the more simple, streamlined needs of this team. A simple prototype was tested at one site and modified as needed. Days later, the automated system was installed at the other three sites. The total effort from design to implementation took 30 days.

Examples of Quality and Smart Work. Using a simple mind mapping technique, the planning and control process was initiated by informing the various sites and team players via a SOW, of the what/when/how/and who

(responsibilities) of the design, test and installation planned effort. This simple SOW was part of the define stage of the total registration system life cycle, which was tailored for this small project.

Example of Rewards-Computer Specialist. The computer specialist received (1) "a piece of the action" in that it was "his" design to modify as he saw fit, (2) "freedom" in that he was left alone to design solutions and work out any problems with the team, (3) "fun" in that he liked to play games at using existing resources to solve problems, and (4) "recognition" in that the success of this long-overdue automated system was communicated throughout the computer department.

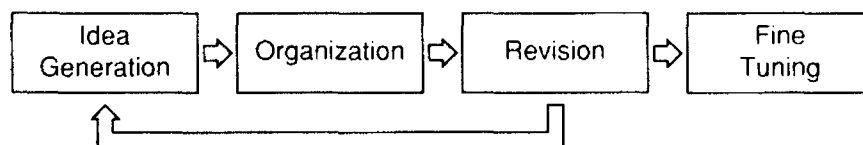
Example of Rewards-Staff. Staff members were individually rewarded in terms of "fun," "recognition/praise," "favorite work," "personal growth" for working as an integrated team, for streamlining their work, for standardizing procedures, and for initiating ideas that solved customer problems, including their own.

Case Study #3. In another example, the aerospace company administrators oversaw the daily training operations of each of the various training sites.

Performance Measures. A standard performance criteria of teamwork, productivity, and entrepreneurship was used. The supervisor modeled the teamwork behavior that she sought by promoting self-esteem, using praise, and discouraging misdirected competition.

Discussion. Some staffers tried to build up their importance and downplay the importance of others. Many refused to extend a helping hand to each other when it was needed to get the job done. In some cases, backbiting, criticizing each other and playing political games was the norm. Some sites formed personal rivalries and developed a "us versus them" group faction that frequently disagreed.

FIGURE 2. The Writing Cycle



The supervisor "called the game." During a full-group staff meeting, all parties were presented, face-to-face, with the sniping comments that had been whispered to senior management during the past months. When presented with these quotes, most people denied that the comments were made. Staff were reminded that their rewards were based in part on each person's ability to work together as a team. These counterproductive comments were not heard again.

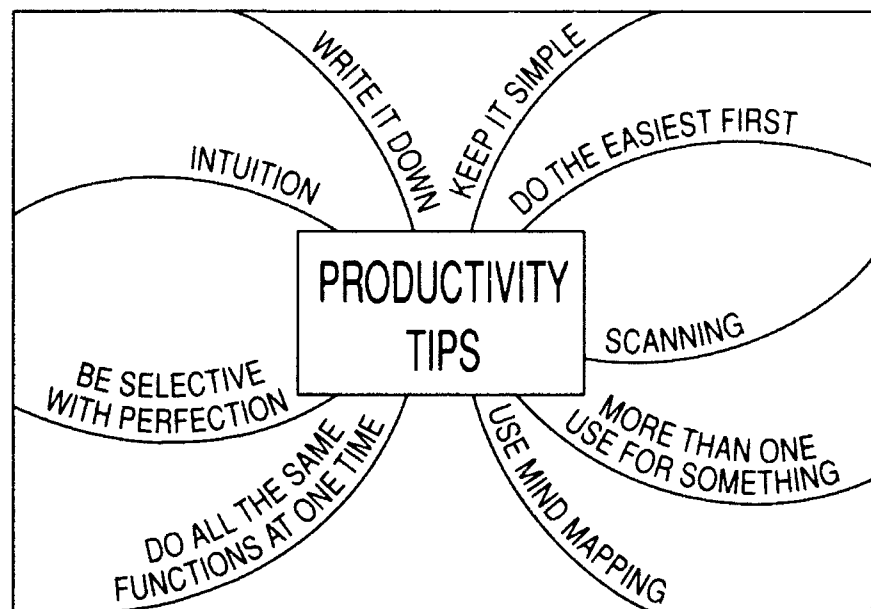
Colleagues visited each other's site, observing new and different ways to accomplish the same function. Administrators were able to benchmark methods and determine if their method was more/less streamlined than their colleagues. Suggestions were offered regarding a better method (solid solutions, not quick fixes). It was up to each site team and each individual to agree and implement more streamlined methods, and work together for a common goal of improving customer service at their site.

Rewards. Staff was rewarded individually based on their participation as team members, agreeing on methods, and streamlining work. While each function had an accountable member, people were rewarded for teaching each other, cross training, sharing work/functions, and helping each other in the true sense of the word—teamwork.

Results. Within 4 weeks, the various sites were standardized, and improvements in services were tailored to each customer-site needs. This was because people were rewarded to take risks, for creating new ideas, for streamlining, for helping each other in the true sense of teamwork, and for achieving goals.

Using the criteria in this manner requires leaders to (1) be flexible and open to new methods, (2) be understanding and tolerant of mistakes, (3) be good listeners and good questioners, (4) be risk takers and entrepreneurs, (5) be good negotiators with flexible

FIGURE 3. Productivity Techniques in Mind Map Format



terms, and (6) practice what they preach; i.e., good role models for the behavior they seek. Rather than "do what I say, not what I do," they should say "follow my example."

Rewarding the Right Behavior

A plant manager tried to improve productivity by pitting the day shift against the night shift and giving the winners an extra week of vacation. The plan had an opposite effect. Each tried to sabotage the other by jamming the machinery, hiding tools and reducing the materials inventory. Why didn't this work? What was being measured?

He was measuring and rewarding "non-teamwork." Rewarding the RIGHT behavior and determining what to measure can be the most difficult task in the performance management process. Trial and error is frequently necessary in determining the specific activities to measure.

This performance criteria can be standardized and can be used in any situation where performance is important. Ongoing research by this

author, tracked on a defense-sponsored data base known as ROAR (Research on Ongoing Acquisition Research) is being conducted applying this criteria on such varied applications as selecting suppliers, measuring leaders, how to implement ISO 9000 standards, designing and managing health care, and measuring leadership performance in education.

Flexible, creative, non-monetary rewards, such as "recognition," "freedom," "favorite work," "piece of the action," "advancement," "time off" and "fun" are some rewards applicable to motivating self, staff and suppliers. Leaders can be creative with their rewards. Make them work. Have fun. The key is: rewarding the RIGHT behavior.

Standardize the Performance Criteria

Yes, performance can be measured and standardized. A performance measurement criteria which includes teamwork, productivity, and entrepreneurship has been illustrated, researched and proved. Key to measuring performance however is "productivity" which focuses on (1)

doing the right things (knowing the processes), (2) doing the things right (smart work), and (3) simplicity.

We need to examine our behavior, change our attitudes, praise our colleagues and staff, and be more helpful to, and tolerant of, others. Let's reward the right behavior. Aerospace and defense have the answers. Shouldn't we listen to these leaders? Let's follow their example.

Isn't it time we refreshed people in the use of these tools and techniques? Shouldn't we reward leaders for increasing team loyalty, building trust, discouraging misplaced competition, building self-esteem, achieving quality results, and modeling the behavior they seek?

Aerospace and defense leaders have answers about structure, processes and performance. Let's use them as benchmarks. Aerospace and defense have their problems too. Yes, there are people in aerospace and defense who exhibit several biases, fail to encourage cultural diversity, shoot the messenger, who cannot forgive and forget mistakes, who tolerate and even practice sexual harassment while verbally denying it. We understand that these personalities and traits exist.

But where people have risen above this behavior, and look at staff and colleagues as human beings who err, learn and grow, these are the leaders—named in this article—we should look to in seeking benchmarks of behavior, structure and leadership performance. Look to these leaders, follow their example, and reward the right behavior.

With decreasing budgets, how can we afford to teach everyone these methods? What's the solution? At Honeywell Defense Avionics Systems Division, Ralph Wood and Jack Byrd, Jr., observe that senior managers' "...actions often do not reflect their words." How are we rewarding senior managers now?

Why not reward senior managers for productivity and quality work (i.e., understanding structure and processes) for streamlining, entrepreneurship and teamwork, and for modeling these methods themselves...?

The ultimate key is that people must be rewarded for using structure and processes; i.e., quality work; must have a performance measurement system that rewards people for simplicity, streamlining, new ideas, and for being better team players; most of all, leaders must be rewarded for providing the example to follow.

As General Loh reminds us, leadership is how improvements in quality will occur.

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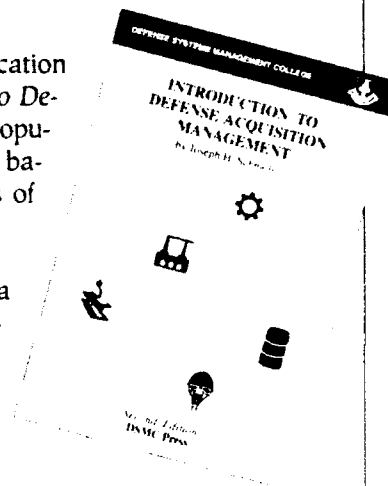
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EVOLVING A SET OF PROGRAM MANAGEMENT PRINCIPLES

John J. Bennett, DBA

Remember Management 101 and the principles of organization—unity of command, the exception principle, span of control, scalar principles, departmentation and decentralization? Remember the management process—setting objectives, planning, organizing, directing, controlling, communication and making decisions? I can remember having a wallet-size card I carried. On one side were listed the principles, and on the other the functions. Although outdated now, these mechanic-type aids made it easier to learn and remember fundamentals of management. Do you think program management has reached a point of sophistication where a set of easy-to-remember principles can be postulated and agreed to? I do.

The Thesis

According to management theorists, a management discipline is defined by a body of knowledge, a set of basic concepts, and supporting management principles. General systems theory, the basis for much of program management practices, is an accepted management discipline that meets these criteria. Program management

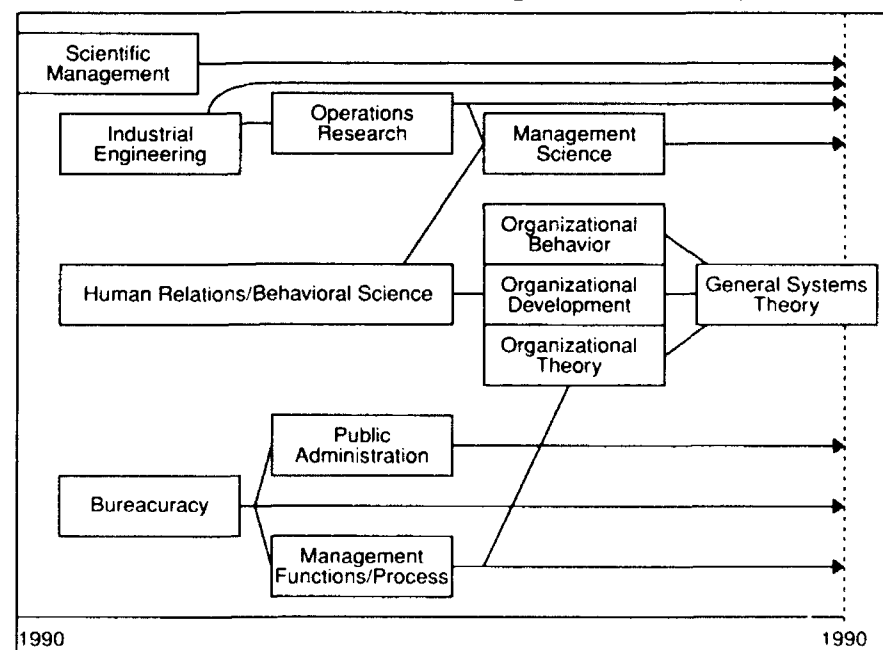
can be viewed as a unique and specific application of this systems management discipline.

Acquisition program management, as we know it, is supported by a large body of knowledge, primarily from the federal government and the aerospace/defense industry. One of the next steps in the search for greater professionalism is the recognition of a formal, viable program management body of knowledge. This development could occur independently or in conjunction with one of the professional associations such as the Project Management Institute (PMI), the National Contract Management Association (NCMA), or the Society of Logistic Engineers (SOLE).

The refinement of system management concepts and the evolution of program management practices (e.g., PERT) are generally accepted and well received by both academics and practitioners. These program management concepts and practices can be structured into a set of management principles giving more focus and visibility to the art of program management.

Whereas a body of knowledge tends to center on management functions, management principles focus more on the tasks to be performed. Thus, a set of principles supported by the methods used would appear to be a good basis for setting performance based learning objectives. Each of these aspects are discussed below.

FIGURE 1. Overview of Management Theory



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The Body of Knowledge

The Defense Systems Management College (DSMC) has been the Department of Defense (DOD) center of excellence for DOD program management education and knowledge since 1971 when it first started training program managers. Throughout the years the DSMC teaching documentation has undergone continuous research and updating to interpret policy, specify functional details, identify practices and procedures and provide methods and techniques. These have been taught to a wide variety of military, civil service and industry middle- and senior-management. More recently, DSMC has embarked on producing detailed handbooks covering many major program management functions, particularly in terms of technical management. Now, the College is about to address program management functional skills on a much more definitive and accelerated basis. To a large extent, the DOD program management knowledge base has not been subjected to the scrutiny of outside management theorists. Nevertheless, there are very few who would disagree that the DSMC program management body of knowledge is an acceptable professional standard for purposes as described here.

The Project Management Institute (PMI), a nationwide professional association, has for several years conducted research to codify a project management body of knowledge.¹ Program management and project management are both variants of the system management discipline and are very similar to each other. Whereas the government-sponsored program management is directed more toward technical development and production of weapons, space, and energy systems, the PMI effort in the past has centered on project management in the construction industry. Recent efforts to refine and extend the PMI work to include aerospace defense practices are expected to be published in 1993, or early 1994. It is under-



The Project Management Institute (PMI), a nationwide professional association, has for several years conducted research to codify a project management body of knowledge.

stood that programs will be treated as super projects.

The PMI body of knowledge divides project management into six basic functions. Each function is broken down further into topics and subtopics in the manner of a work breakdown structure (WBS).² While good progress has been made, there have been difficulties. If the body of knowledge is to be recognized as unique, researchers feel the blocks of knowledge from other disciplines must be limited. Also, overall project integration and interface management and the interdependencies and interrelationships between the six management functions must be addressed. In addition, there may be considerable overlap and duplication as the WBS is expanded to successive lower levels.³

The National Contract Management Association (NCMA) and the Society

of Logistic Engineers (SOLE) have program management as a major element of their association body of knowledge, but codification of this aspect has not reached the extent found in the PMI effort.

Basic Concepts

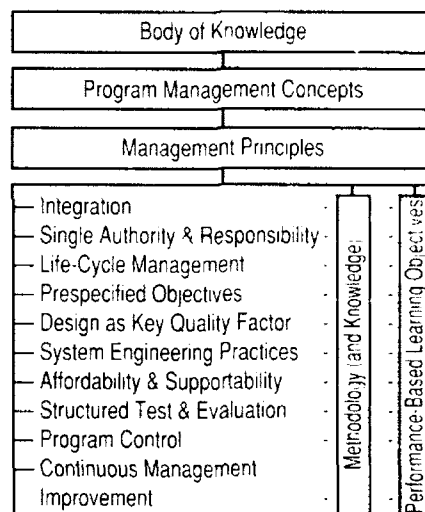
An overview of the general systems theory as contrasted to other management disciplines is shown in Figure 1. Systems management is based on the concept of wholeness. Under program management we treat the program or project as a whole (i.e., as an all inclusive system). Planning for the program as a whole, we can better interrelate the various organizations involved, the functions to be performed and the work to be undertaken. A second concept stipulates that in treating a system or program as a whole, the sum of the whole is greater than the sum of its parts. For example, an automobile may operate but it will operate most efficiently if its engine and its interactive parts are synchronized. If a program manager can successfully streamline (i.e., integrate) the individual program processes and functions, a particular program (the total system) can be made more effective and efficient. A third concept states the whole of a system or program is as strong as its weakest link. If we can identify these weak links through analysis we can take actions to reduce problems such as program overlap, work duplication, or poor resource utilization. Thus, if we can strengthen the weak links, we can reduce time or effort required for the program and we can expect to save money.

Using systems management and its concept of wholeness as a philosophy, the program manager is expected to be able to visualize his program, its organization, and how its operating structure fits together and how its individual parts are synchronized. It is his/her responsibility to effectively oversee the program technical management, perform aspects of the pro-

gram business management, and be the number one program advocate (along with the user). He/she must ensure that program events and activities, sometimes encompassing up to 10 years, are in the aggregate identified and logical. As the program's spokesman he/she must understand and be capable of addressing the totality of existing and future economic, social and political conditions affecting his/her program. Philosophically, the program manager is an entrepreneur operating a business within a business, his/her corporation or government agency.

The central theme of program management action is to bring about change, and generally in the form of a new or modified material item or thing (i.e., a system or equipment, a commercial product, computer/communication hardware/software, a facility, or some similar goods or services). The desired change is stated by setting forth predetermined objectives for the item. Usually the program involves new technology that is complex and costly. This leads to establishing a temporary organization and a program manager with certain authority and responsibility. The program manager is chartered to create a detailed plan covering work content over the program life cycle from inception to completion. The plan, when approved by corporate officials, provides a resource allocation, serves as a contract between both parties, and becomes the basis for status reporting. The program manager must systematically plan and control time (schedule), cost and technical performance for the item he/she has under development. Necessary technical documents must be specified, tracked for adherence and monitored to maintain quality and control. Uncertainty and risks are identified as part of planning, and various techniques and tests applied to minimize plan variations and deviations; and, where work is performed under contract as will be the case, the program manager assumes responsibility for contractor activities.

Figure 2. Concept of Candidate Management Principles and Interrelationships with Other Elements



Management Principles

Given these basic concepts, what kind of management principles might we postulate? As you consider this question you will find several principles that are generally accepted as such today (e.g., single authority and responsibility), or are implied (e.g., life-cycle management). It is safe to say, however, other principles will need to be thought out, debated by scholars, recast and refined. A candidate list is shown in Figure 2 and described below.

Integration. The principle of bringing together heterogeneous disciplines, organizations, functions, processes, technologies, data and/or information, both vertically (organizations, functions, skills, budgets, etc.) and horizontally (processes, procedures, events, activities, etc.) to effectively and efficiently manage a program. Program integration is the basis for synchronizing the resources and program work to be performed.

Single Authority and Responsibility. The principle of vesting program management decision-making, coordination and supervision in a single

individual, limited only by pre-stated corporate constraints and the necessary chartering, organization and plans to do this. The primary benefit of a program management organization is that authority, responsibility and ultimately accountability for the success of the program are vested in one individual — the program manager.

Life-Cycle Management. The principle of structuring and management of a program process and subprocesses from inception of an idea through disposal or replacement of a product after its useful life expires. Process management methods are used to identify and resolve functional life-cycle interfaces and interdependencies, as necessary, to tailor the product life cycle.

Prespecified Objectives. The principle of prespecified objectives requires early-on and specific planning to identify explicit technical and business requirements, program strategy and risks. Requirements for change or new capability in the form of plans must be well documented. A strategy stating how the system or product will be acquired must be formulated. Program risks must be identified and reduced to acceptable levels before development.

Design as Key Quality Factor. The principle of designing-in quality requires a total perspective of customer requirements, consideration of alternative solutions and trade-offs, addressing manufacturing and logistics factors in design, and balancing cost and performance with customer satisfaction. The design should represent the best trade-off among the competing life-cycle requirements, including reliability and maintainability, producibility, life cycle and design-to-cost, and operations and support factors.

System Engineering Practices. The principle of using systems engineering methodology, an iterative techni-



The National Contract Management Association (NCMA) and the Society of Logistic Engineers (SOLE) have program management as a major element of their association body of knowledge.



cal process, to transform the operational or user need into a technical product description, to integrate all program technical factors, and to specify the total engineering effort. Technical documentation, configuration management and technical reviews and audits are all part of systems engineering.

Affordability and Supportability. The principle of systematically planning and controlling technical factors of ownership in terms of affordability and supportability (and in commercial terms, competitiveness). Affordability is the determination that the program life-cycle cost (assuming system or product effectiveness) is in consonance with corporate long-range investment and product plans. Supportability is stated in the form of logistics support parameters, wherein reliability and maintainability become the surrogates for supportability throughout the development, test, and production (life cycle) phases.

Structured Test and Evaluation. The principle of structuring program life-cycle test and evaluation as the major method of risk management. Costly redesign or modification can be reduced if properly planned. As a risk identification and reduction tool, test and evaluation provides information to decision-makers responsible for deciding on the most effective use of resources.

Program Control. The principle of program control involves the use of management techniques and information for planning and controlling pro-

gram schedules, cost and technical performance (and related risks). Program control includes cost estimating, milestone and master plan scheduling, PERT/CPM, and cost and schedule control techniques (and related technical status).

Continuous Management Improvement. This principle reflects the need for program managers, collectively and individually, to be informed about, to promote and to use new automation technology to improve the effectiveness and efficiency of program management and the physical processes used for developing, producing and distributing/deploying the system and products they are managing. The CAD, CAM and CALS are three of the major new automation initiatives being developed and used in program management.

Summary

A thesis has been set forth linking in theory a program management body of knowledge, basic general systems or system management concepts, a set of management principles, and performance-based learning objectives. It is suggested that this interactive linkage will provide a better basis to improve program management professionalism through more structured education and training. Concurrently, the author suggests that the development and use of a stand-alone set of program management principles also will add value to the learning process.

A body of knowledge for program management is evolving from DSMC

training material and could be formally recognized and codified. Similarly, PMI has published a project management body of knowledge closely aligned to program management. The PMI research is continuing to refine and extend its body of knowledge to include program management interests. Program management efforts to establish a body of knowledge could be based on an independent effort, the PMI initiative, or other alternatives available.

I believe it can be demonstrated that a set of management principles can be postulated either as the next level of a body of knowledge, or as an independent entity with value in its own right. In this article, a candidate list of management principles is set forth as a basis for discussion. The focus of management principles more on tasks as contrasted to functions, the possible reduction of interdisciplinary functional descriptions for clarity and simplicity, and the extension of task-oriented principles to performance-based learning objectives appear to be of sufficient value to warrant supplemental academic research.

Endnotes

1. The Project Management Institute, Project Management Body of Knowledge (PMBOK), Drexel Hill, Pa., 1987.
2. Ibid, Page 2-1.
3. Ibid, Page 2-2.
4. Army Command & Management Theory & Practices 1900-1980, U.S. Army War College, Carlisle Barracks, Pa., undated.

EXISTENTIAL PROGRAM MANAGEMENT:

Running the Marathon

Owen Gadeken and Forrest Gale

Running a marathon parallels managing a project in the Department of Defense acquisition environment if we consider a marathon equivalent to an acquisition project. Two Defense Systems Management College (DSMC) faculty members, Forrest Gale and Owen Gadeken, having little running experience, ran and completed the Marine Corps Marathon last October. Here is what they learned.

Project Initiation: Making the Commitment

We owe a lot to Mr. Chris Scott, a DSMC faculty member and running enthusiast who had the idea of sponsoring a team of faculty and students to train together for the marathon. We attended Chris' organizational meeting and signed up to be part of the team. We doubted whether we could complete a marathon, but were interested enough to sign up. The real project initiation was not this superficial sign-up but the underlying commitment we then made to train for the marathon.

Because there was risk in the project, making the commitment involved trust in our peers and the training process.

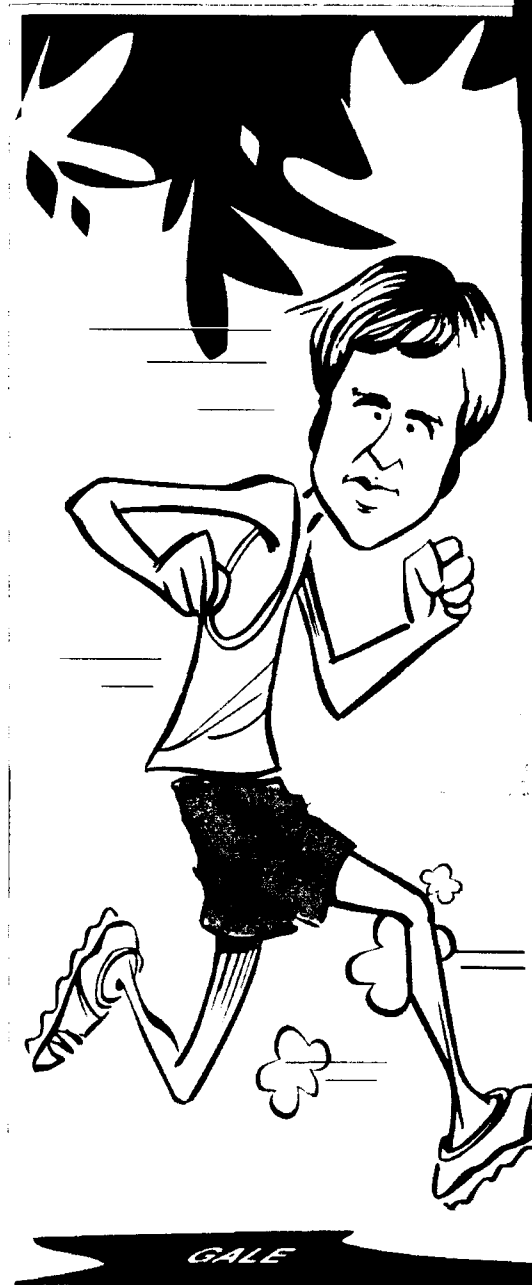
Dr. Gadeken is chairman of the Education Department, and Mr. Gale is a professor of acquisition management, Automation Operations and Education Department, DSMC.

There is a reciprocal relationship between commitment and trust, and underlying that reciprocity are basic fears that might modify or weaken the commitment. The commitment was modified or weakened by subliminal limitations which included the fear of getting hurt and that the pain of training would be too great, physically or psychologically. Also, there were the aspects of play and fun. Would the long training schedule cease to be fun and enjoyable? Would psychic rewards diminish? There was the fear of failure, the anxiety of whether or not we could persist.

Support was available in terms of using Mr. Scott as a mentor because he was an expert runner with considerable experience and could provide much structure and guidance, as could other runners from the class and faculty. However, it came down to each of us making a decision to commit and adjust our other activities and interests to accommodate the rigorous training schedule necessary to run a marathon. The basic program management principle is that in initiating a project or program you need to get real commitment from those involved.

Training Strategy: Learning How to Learn About Running

After making the decision to prepare for the marathon, we had to plan our training strategy. We relied heavily on Mr. Scott who provided us with a



breakout in terms of the number of miles we had to run each week for the 12 weeks preceding the marathon. He flooded us with useful tips ranging from shoes and socks to diet and fluid intake.

But the underlying issue was how we were going to adjust our thinking processes. The key to developing a strategy for running a marathon or executing an acquisition program is learning how to think about the issue. In fact, the learning process begins long before you actually execute

the event. In working the preliminaries and strategizing, you grow and develop abilities to learn and think about how to do what you are doing. When we thought about running, we had to learn how to learn about running. The learning process was the most critical perspective we gained early in the process.

We found the best way to learn about running was through the running itself. Many experiential aspects of running are shared with program management activities. We figured

out early that what we were really learning was not the physical process of running but the psychological process of running. We were going through a socialization process. Many conversations took place as we ran, just as there is a rich dialogue in executing an acquisition program. Our dialogue centered on two primary levels. One was the conversation each of us had with our bodies and, then, externally with the environment. Second was the social conversation we carried on rather vigorously. That social conversation ultimately was critical to our running success, just as it is critical to the success of a program office. Then, there were environmental influences that were also conversational: tools, techniques, shortcuts, and heuristics we learned from Mr. Scott who had experienced them and had deep insights into how those influences played into the successful prosecution of a running program.

Executing the Training Strategy: Adapting to the Environment

After developing our training strategy for 12 weeks leading to the marathon, the issue was to execute the strategy. Flexibility became paramount because we were doing this as an add-on to an already full schedule of college, family and part-time teaching activities. We had to learn how to adapt to the reasonably rigorous time requirement because we ran six days a week and up to an hour and a half a day, a considerable bite out of our schedules. We had to accommodate things like blisters, unexpected meetings and travel requirements.

One thing that happened early in the execution of our strategy was that one of us experienced rather substantial trauma, an impacted foot injury which slowed the training and reversed the schedule. This is the kind of thing that happens in acquisition when something goes wrong on a program. You think you have the technical details handled in full-scale



development and, suddenly, up comes a showstopper such as sponsor turnover, a budget cut or test failure. In this case the showstopper reversed the training process for one of us.

Underlying the basic execution of our strategy was an early understanding that we were learning while doing. In planning an acquisition program, the plan is an abstraction of what is going to happen, and you always adjust to the learning going on while you manage the program. You must continually flex and adapt to the environment. We had to do that in terms of the physical running environment as well as the schedule impacts on things we were doing at the college and at home.

One underlying principle was that we had a robust quality process for training, provided to us and supported by Mr. Scott. So in spite of changes and adaptations we had to make, because we had an underlying quality process we reached our goal in spite of the difficulties. We adjusted our process to learn from changes taking place in our bodies and in our environment. In the back of our minds was the question: Could we really do this? But we were building a physic reservoir of little successes. We were building on small incremental strengths and ultimately strengthening our abilities to perform in the long-term, much like what takes place early in an acquisition program.

The effect of teamwork changed our paradigm of running from an individual physical activity into a social, psychological one. We did not appreciate this until we actually got into it. Our ability to sort this out as we were training proved to be a critically important element in achieving our goal.

Running the Marathon: Existential Production

This leads us to the marathon which was almost anticlimatical. In having made the commitment and trained,

we had almost assured ourselves that we would complete the event.

Several things happened during the marathon, which included having another person from the group join us at the last minute and run with us for almost the entire race. Even though experienced, we provided him support because he had early difficulties in the race.

In acquisition language, running the marathon was our production phase. We let the anxiety that had been building about our capabilities work for us. We used the natural anxiety about pace to slow us to the point where we established a rhythm. Rhythm and timing are important in running, just as they are in an acquisition program. There is a certain timing not only dictated by the budget and the financial processes but by political rhythms which are critical to program success.

Actually, running the marathon means everything that took place from conceptualizing of the opportunity through actually running the 26 miles. We artificially create stages in running just as we do in the acquisition process. There is a flow of activity that is seamless, and imposition of interfaces between phases is artificial. It is a seamless process.

One issue we dealt with was that we ran only one practice race; other training was done on our own, after work. Our practice race was a half-marathon with limited runners and almost no crowd. This presented us on the day of the marathon with a considerable scale-up, which we had not experienced. There were almost 13,000 runners and thousands of people lining the course. We were running in different circumstances and we had to adjust to a new environment. The same thing occurs in acquisition programs where you need to be sensitive to changes in the Congress, headquarters, the user community and the status of other related

programs. The whole issue of sensitivity and adjustment played into what we did in the marathon as it does in the acquisition process.

Finally, there was the wonderful moment when we approached the finish line at the Iwo Jima Memorial. We finished by running up a hill and around the Memorial, where there was the greatest crowd, cheering everyone on. It was a physical and emotional high. We had such an energy burst at the end that we sprinted the last quarter-mile and passed several hundred runners eeking their ways toward the finish.

There was a real payoff here. It was much more than just completing the race and a sigh of relief. In fact, there was a flow well beyond the end of the marathon. We continued to dialogue as a team after the race about what we learned and the growth and development we had achieved. It reflected our ability not only to cope but to succeed and then to learn from that success.

Looking Back: What We Learned

As we look back on the marathon, we find interesting analogies with program management. Different lessons come from each phase. Getting real commitment was necessary for project initiation. The real commitment you must get from program sponsors and from throughout the organization is the same that must take place as you team to run a marathon. Real commitment involves trust in the process, dedication to achieve the objectives, and understanding that in doing the learning and development there are major and critical outcomes.

In developing either a running or an acquisition strategy you must learn how to learn from your and others' experience. Even if learning is not factored into your strategy, you are bound to learn the lessons later when stakes are higher. You must trust the

Figure 1. Acquisition Lessons from Running the Marathon



LESSONS LEARNED

| | |
|-----------------------|--|
| Project Initiation: | Getting Real Commitment |
| Acquisition Strategy: | Learning How to Learn About the Process Establishing a Robust Process |
| Executive Strategy: | Adapting to the Environment Teaming Is Essential to Success |
| Production: | Importance of Rhythm and Timing |
| The Real Project: | A Personal Transformation Process to Develop Mastery, Teaming and Vision Self-Confidence Is the Result |

learning; in other words, use what you learn. There are multilevel conversations taking place interactively in the program office: logically, physically, and structurally with other organizations, sponsors and mentors. The learning involved in those conversations is all important to success.

You must accommodate and be sensitive to the environment. That is a principle you must strategize; if not, you will be overtaken during the actual execution of your strategy and jeopardize the outcome. You cannot predict the future. All planning is an abstraction. Even though we teach a disciplined planning process and the importance of strategizing, you simply will not be able to develop and understand all contingencies. That again emphasizes the importance of having a flexible strategy and being able to respond quickly.

Teaming is a prerequisite to achievement. Without teaming, no person or small group can execute any project successfully. It takes a real teaming effort internally and, then, interorganizationally. This was also true in the marathon. Without interactive teaming we could not have achieved what we did.

Timing is critical to success and the rhythm you build up in a program.

You need to know when to do things and when not to, and how to think about the timing issue. This is critically important in running, and critically important in program management. Underlying our timing was the robust training process which stood us in good stead as we flexed and adapted to our environment, our individual schedules and the many things that influenced us.

Production, the response to winning, sets up conditions to continue. The way we won has led to the generation of this article and, in small and subtle but meaningful ways, to improvements in the way we teach and work as professionals at the college. We developed self-confidence because we achieved a goal we thought was beyond us.

We conducted a session recently with senior students in the DSMC Program Management Course. We asked: Why are you here, what is the most significant thing you expect to learn? We were disappointed not to get anything specific from them. Instead, they indicated in many ways that they wanted to develop a sense of confidence to handle the spectrum of issues confronting them in the acquisition process. This has a straightforward analogy with our learning in the marathon.

As we recall our marathon experiences and the confidence developed, it sets us up to do other things, not necessarily running but management and personal things we may have thought ourselves incapable of. That self-confidence permeates our activities on a day-to-day basis, even in terms of little things like conducting a class, working with a colleague, or meeting a deadline.

Some principles of running a marathon equally applicable to acquisition management are summarized as "lessons learned" in Figure 1.

The Real Project: A Transformation Process

Our most significant learning was that the real project was not running the marathon but the transformation that occurred from our initial commitment through planning and execution. What we are talking about here is a personal transformation process. This is analogous to DOD acquisition where the essence of program management is the transformation of a user's requirement into a fielded system. But just as in running, the more significant transformation in program management is growth and development of individuals within the program office, with respect to things like personal mastery, teamwork and shared vision. We see this as the real metaphor of what goes on in the program office.

Epilogue

So what now, what's next, why do anything different? We feel we are not the same as before we ran the marathon. We have personally grown and developed and can leverage that experience directly into the acquisition education, research and consulting activities in which we both are involved. Running the marathon was a meaningful, powerful, and empowering experience which forced us to confront and master fundamental issues of program management.

**Defense Systems Management College
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PROGRAM MANAGER'S NOTEBOOK UPDATE

We Want to Hear from You

The Defense Systems Management College (DSMC) is revising existing fact sheets and creating new fact sheets in the following subject areas of the *Program Manager's Notebook* (June 1992 edition):

Acquisition Management
Procurement Planning and Contract Management
Engineering Management
Joint Service Programs
Test and Evaluation
Quality

The packet of revised and new fact sheets should be ready for mailing by August 1993.

The DSMC requires that written requests for the packet be kept on file in our office. Therefore, if you wish to receive the fact sheet packet and future updates, you must sign, date and return this form no later than June 30,

1993. Also, please answer a few questions. (NOTE: This survey applies only to those who have the *Program Manager's Notebook*.) Remove the pressure-sensitive label from the publication's cover and place on the form's designated spot. Make address corrections directly on the label. After signing, dating and providing information, fold the form so the Business Reply Mail address is visible; tape it closed and drop in the mail. Unless you move or change jobs, this information will keep your updates current through April 1994.

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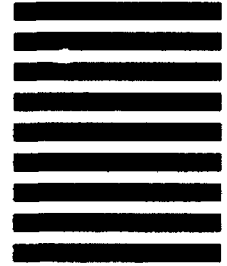
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LETTERS

To the Editor:

After reading the article on New Ethics Standards by James D. Alstott in the March-April issue of *Program Manager*, I am left with a question. Are women not covered by the "Specific Provisions" in the new ethics laws? The author used the masculine term throughout the entire article, even though there was not one masculine reference in Figure 1 of the article, which I interpreted to be a direct quote from the "Standards". For Example, on page 33 of the article, the "reasonable man" test is referenced. Yet, in Figure 1, in Principle #14, the term "a reasonable person" is used.

I do not agree that the disclaimer on the back of the front cover is the appropriate way to handle the matter of gender specificity. If OMB can use the word "person", DSMC ought to be able to use it also. I am disappointed that the staff of *Program Manager* allows this discriminatory treatment of a large fraction of the federal workers.

Joann Langston
Competition Advocate General
of the Army
former Army Chair, DSMC

Reply:

Thank you for your letter of April 2, 1993, regarding the use of masculine terms and pronouns in James D. Alstott's article in the March-April 1993 issue of *Program Manager*.

Your point is well made and understood, and I am glad you raised it. I assure you the policy of the DSMC Press is to avoid sexist language in all of our publications.

Good journalistic practice in both government and non-government publications prescribes using disclaimers, such as the one on the inside cover of *Program Manager*, as the most appropriate manner for stating principle and clarification on using masculine terms. To use "her" "him" or derivatives is considered awkward and unwieldy and detracts from ease of reference. The word "person" can be used in some cases but is not used if grammatically incorrect; and, in general, neuter pronouns are not used if they do not fit the syntax.

If an author uses feminine terms and pronouns, should a separate but reverse disclaimer be used? Most likely it would not, and our editors and I cannot recall seeing such a case.

As females, the managing and associate editors of *Program Manager* are attuned to what you have raised, and will continue their vigilant support of our policy and common-sensical treatment of this subject.

Wilbur D. Jones, Jr.
Director
DSMC Press

NEW USD(A) STRESSES NATIONAL ECONOMIC SECURITY

Dr. John M. Deutch, sworn in April 2nd as the Under Secretary of Defense for Acquisition, in his first major public appearance stressed that the immediate concern of the United States is improving its economic security. This can be partially done by maintaining a strong infrastructure through the mechanism of research.

Deutch delivered the keynote address to a gathering of several hundred attending the Defense Symposium on Government, Industry, and Academia (Research): Partnership for a Competitive America, held at Fort Lesley J. McNair in Washington, DC, on April 7th.

Mindful of his 23 years of work at the Massachusetts Institute of Technology, Dr. Deutch acknowledged that

major changes in the defense acquisition process must address the way the Department of Defense (DOD) makes its decisions and must include reliance on the commercial sector.

The exact changes to be made, he continued, remain to be seen, but there is no doubt about the reliance DOD must place on the civilian sector to establish maximum stimulation of dual-use technologies. The DOD must identify the criteria for dual-use technologies and consider military value and economic value to the nation's business interests, while collaborating with other government agencies.

Budgets for research and development and procurement will continue their downward trends, Deutch stated. These trends can be somewhat offset by breaking down the walls between

DOD and industry. Government must get the macroeconomics right, the interest rates, deficit, inflation, etc. The firms having the "best practices" are going to fare differently from the "average firms." He added that DOD laboratories have been partially insulated from the budget reductions, but the issue of maintaining high quality while downsizing remains.

The Symposium was hosted by the National Defense University, Defense Acquisition University, Industrial College of the Armed Forces and John M. Olin Institute for Strategic Studies, Harvard University. It was sponsored by the Association of the U. S. Army, Association of the Industrial College of the Armed Forces, Air Force Association, and Marine Corps Association.

—J.W. Gould III

UNDER SECRETARY OF DEFENSE SWORN IN

John M. Deutch was confirmed April 1 and sworn in April 2 as the Under Secretary of Defense for Acquisition USD(A). His professional experience includes positions in academia including Princeton and the Massachusetts Institute of Technology (MIT), where he was a faculty member since 1970.

Dr. Deutch was born July 27, 1938, in Brussels, Belgium. He has been a citizen of the United States since 1946.

From Amherst College, he received a B.A. degree in 1961; and in 1978, History and Economics, D.Sci Hon. Caus. In 1961, he earned a B.S. degree in chemical engineering from MIT, which awarded him a Ph.D degree in physical chemistry in 1965. At the University of Lowell in 1988, he received a D.Phil (Hon. Caus.).

Doctor Deutch was Assistant Professor of Chemistry, Princeton, 1966-69; Associate Professor of Chemistry, MIT, 1970-73, and a Professor from 1973-present; Chairman, Department of Chemistry, MIT, 1976-77; Director of Energy Research, Department of Energy, October 1977-August 1979; Acting Asst. Secretary (Energy Tech.) Dept. of Energy, June 1979-August 1979; Undersecretary, Department of Energy, August 1979-March 1980; Dean of Science, MIT, 1982-85; Provost, MIT, 1985-1990; and, Institute Professor, MIT, 1990.

His many fellowships and honors include the John Guggenheim Memorial, 1974-75; American Academy of Arts and Sciences, 1978; Secretary of Energy Distinguished Service Medal, 1979; and, Department of Energy Distinguished Service Medal, 1980.

Doctor Deutch has been involved in numerous professional activities. These include: Urban Institute consultant and trustee; Army Scientific Advisory Panel member; President's Nuclear Safety Oversight Committee; University Research Association, trustee and SSC overseer; President's Commission on Strategic Forces; White House Science Council member; President's Foreign Intelligence Advisory Board; Wellesley College trustee; Trilateral Commission; and, Governor of Massachusetts Technology and Economic Development Council member.

Doctor Deutch is a member of the Board of Directors of Citicorp, CMS Energy, Perkin-Elmer Corp., Schlumberger, and Science International Corp.

WILLIAM J. PERRY Is DEPUTY SECRETARY OF DEFENSE

William J. Perry, a highly respected expert on military technology, is the Deputy Secretary of Defense under Secretary Les Aspin.

"William Perry is a sound and sophisticated advisor whose expertise on military technology and policy is unmatched," said President Clinton. "Secretary Aspin and I will rely heavily on his knowledge, imagination, and judgement as we work to keep our military the strongest in the world in a time of budgetary constraints"

Perry has long been regarded as one of the country's leading experts on military technology affairs. He had served as Codirector of the Stanford University Center for International Security and Arms Control, as well as being a Professor at Stanford's School of Engineering and Chairman of Tech-



The Honorable William J. Perry

nology Strategies and Alliances, a management consulting firm. He is a member of the President's Foreign Intelligence Advisory Board and the U.S. Senate Select Committee on Intelligence's Technology Review Panel. In addition, Perry is a Trustee of the Carnegie Endowment for International Peace.

During the Carter Administration, Perry served as Under Secretary of Defense for Research and Engineering. In that position, he was responsible for military acquisitions and is credited with making investments in many weapons systems that have been successful in recent military actions.

He was Chairman of the DSMC Policy Guidance Council during the Carter Administration.

COLLEEN A. PRESTON To BE DEPUTY UNDER SECRETARY

President Clinton announced on April 5th his nomination of Colleen A. Preston to be the Deputy Under Secretary of Defense for Acquisition Reform. Preston would serve as a deputy to Dr. John M. Deutch, sworn in April 2nd as the USD(A).

Preston would join Secretary of Defense Les Aspin in the Pentagon following her service on the staff of the House Armed Services Committee since 1983. For the past 4 years, Preston was General Counsel for former Committee Chairman Aspin. Previously, she served as primary legal advisor on acquisition policy.

From 1979-83 she served as an attorney/advisor in the Military Honors Office of the Air Force General Counsel, advising on Air Force Ac-

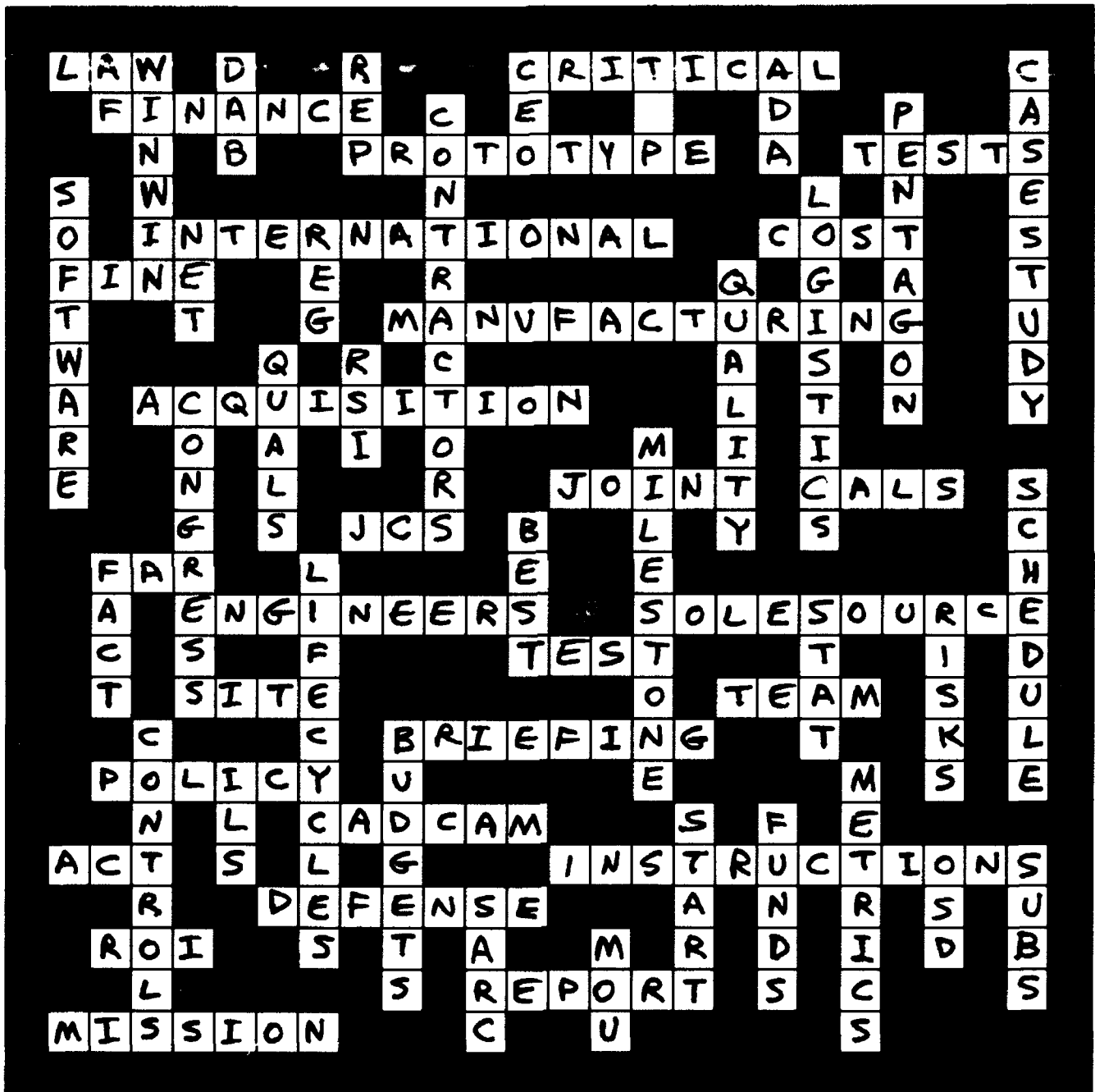


Colleen A. Preston

quisition strategy. Prior to her work with the Air Force, she worked for the Orlando, Florida, law firm of Akerman, Senterfitt & Edison. She holds B.A. and J.D. degrees from the University of Florida at Gainesville (1975 and 1978), and an LL.M degree from Georgetown University (1985).

Well known in the defense acquisition community, Preston has been a frequent speaker and participant in DSMC and other DOD symposia and other briefings, specializing, among others, in contracting, procurement and acquisition work force issues. She was a principal staff operative in preparing the Defense Acquisition Workforce Improvement Act of November 1990, which established the Defense Acquisition University and acquisition corps.

PROGRAM MANAGEMENT CAN BE A REAL PUZZLE



Industry executives, military officers, and civilian managers in defense acquisition operate in their own world of policies, regulations, acronyms and phrases. Your ability to decipher volumes of reference materials and understand the workings of the Defense acquisition workforce are directly related to your training and experience. The Defense Systems Management College offers 22 short courses at five locations, and the 20 week Program Management Course at Fort Belvoir. Improve your success rate in your career. Call the DSMC Registrar at (703) 805-2227 for a catalog or information.

FROM THE COMMANDANT

Past Success and Future Challenge

It is a real pleasure for me to provide a few words in this issue of *Program Manager*. It continues a great tradition of past DSMC commandants and I look forward to future *Program Manager* issues. Since this is my first chat with you as the new DSMC Commandant, I would like to share with you my thoughts on DSMC and acquisition. These are perhaps best expressed by the following comments I made during the recent change of command ceremony.

The college has a long and proud history of teaching the best and brightest minds in our government and defense industry. From its inception, this college has been on the leading edge of acquisition excellence, second to none in the world.

In the past, DSMC has been tasked to review improvements to the acquisition process and, to each occasion, the college has answered the challenge and the products of our acquisition process are better for it.

The 30-plus initiatives of Mr. Frank Carlucci (then Deputy Secretary of Defense) in the early 1980s focused our attention on the "ilities" (reliability, maintainability, affordability, etc.) on our weapons systems. Much of that focus was seen during Operations Desert Shield and Desert Storm.

The Packard Commission report and subsequent legislation have focused our efforts on streamlining the acquisition process and establishing accountability.

We have seen and begun to embrace the tenets of Total Quality Management and Continuous [Quality] Improvement.

These things, and many more, this college has addressed and taught to thousands of men and women throughout the Defense Department and industry in the past few years.

As we look into the future, we see even greater challenges facing the nation and defense acquisition. We have been asked to maintain and, in some areas, increase the quality and effectiveness of our weapon systems while at the same time significantly reducing key resources such as experienced people, time and, of course, money. Policies, laws, and public debate are being effected to provide guidance and assistance in meeting these increased challenges.

While this may be the most turbulent time of recent memory, I am confident the college will again meet the challenge and provide the Defense Department and nation with properly trained and motivated men and women who will continue to provide this nation the weapon systems needed in the years to come to maintain its military strength and capabilities.

As indicated during the change of command, the acquisition challenges are many and significant. However, the acquisition community is responding. The passage of the Defense Acquisition Workforce Improvement Act (DAWIA) and the establishment of the Defense Acquisition University (DAU) are two examples of the response. The college is actively supporting DAWIA and DAU and I believe both will go a long way in restructuring and improving our acquisition process.

The future of acquisition management is not only dynamic, but uncertain and fraught with significant challenges. The challenges offer tremendous opportunities to make improvement. I believe DSMC is poised to help the acquisition community meet these challenges. In future *Program Manager* issues, we will discuss the challenges and solutions. I solicit your thoughts and comments on these. Until the next time, I thank all of you who continue to support DSMC so superbly.

—BGen (Sel) Claude M. Bolton, Jr., USAF